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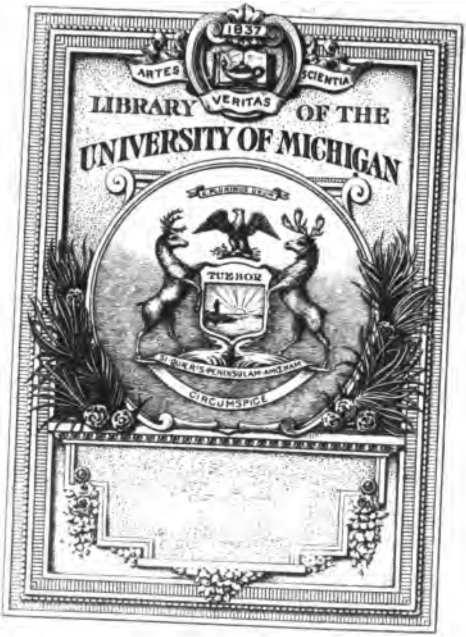
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POPULATION
AND
TRADE IN FRANCE
IN 1861—62.

BY
FREDERICK MARSHALL.

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PREFACE.

A good feeling between France and England is one of the necessities of the age.

The better the two nations know each other, the more clearly they see each other's merits and defects; the more rightly they appreciate each other's real tendencies and position, the more easy ought it to become to maintain that feeling.

It is in the hope of contributing somewhat to that result that I publish this book.

A long residence in France, under circumstances which have placed me in intimate communication with all classes of its population, has enabled me to acquire information on many subjects which, I think, are not exactly known in England. The following chapters, corrected and augmented from articles published in "BENTLEY'S MISCELLANY," treat a few of them.

Where I have quoted facts or figures I have, as much as possible, given authorities for them. Where I have expressed personal opinions I have based them on what I have seen or heard. If I am wrong in any of the ideas which I have formed I shall gladly receive correction, for I earnestly desire to increase my own knowledge of a country to which I am attached by strong ties of interest and affection.

FREDERICK MARSHALL.

Paris, March, 1862.

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POPULATION

AND

TRADE IN FRANCE.

CHAPTER I.

THE MORAL CONDITION OF THE FRENCH.

THE various races of men are generally distinguishable from each other as much by the marked features of their national character as by the accident of the geographical position which they occupy on the surface of the earth. Each one groups itself into a social whole, regulated by certain conditions common to all its members, and by a general model of principle and action, which, accepted by the entire community, constitutes what is understood by a national type.

The French present the singular example of a people without a type. Equality and liberty have effaced it.

Exposed for seventy years to successive revolutions which have destroyed all distinctions of rank and all respect of birth, which have demolished social demarcations and neutralised the effects of relative position, which have suppressed all organised upper classes, and, with them, the moral example which they furnish to the rest of the nation in countries where their influence still subsists, the French have become possessed, as a necessary consequence of this disorganisation, of an amount of liberty in their relations with each other and with society at large, of which it is difficult to form a sufficient conception in England, where the whole people is held in hand by the common action of a normal and adopted rule, and where a recognised majority can clearly express and vigorously enforce its decisions. In France there is no majority, no model; every one is free to do as he pleases, within the elastic limits of what are called the *convenances* of society, without reference to the opinions or prejudices of his neighbours. This privilege is immensely pleasing to the individual who exercises it, and it is its almost universal existence which renders France so agreeable a country to inhabit, and which gives to French life the singular charm of independence which is one of its most striking characteristics. But while this system destroys all tyranny, and permits a freedom of action which is unknown elsewhere, it has produced an almost endless multiplicity of personal developments of character, and has simultaneously suppressed all external unity of type.

Cut up into an infinite series of separate circles and separate societies, which are again indefinitely subdivided according to the number of distinct individualities which compose them, but permitting, from the absence of all real social barriers, the fusion and exchange of these composite elements from class to class, according to the new faculties which they acquire, and to the varying sympathies which they provoke between themselves, the French of our epoch have no great outline of national feeling, no received system of organisation, no adopted tendency of opinion. Their society has no existence as a ruling power; its verdicts, if ever it ventures to express any, remain unexecuted, for it possesses no means of applying them otherwise than by the weak and divided action of such of its members as may happen to agree with them.

Directed during the two last generations by a series of governments, of which the objects and systems have varied, but which have all aided, either intentionally or indirectly, to suffocate the expression of opinion, and to destroy the influence of the educated classes, the French people have unconsciously lost all respect for example, all habit of moral obedience, all desire for uniform convictions; they have ceased to feel that unity of opinion and action is necessary to maintain the vigour and consistency of national character.

Without an example to imitate or a guide to follow, without a national moral object to pursue, without a press to direct their impulses, without the means of public communication with each other, abandoned to their own personal inspirations, unchecked by generally received social laws, without fear of organised opinion, and without even one respected class, they have been reduced to create systems of life for themselves, each one after his own fashion. Brought up in the freedom from social restrictions, which has resulted from the convulsions through which their country has passed, they acknowledge no unvarying rules, support no pressure from others.

Indifference to general theories of conduct, weakened appreciation of the more delicate sentiments, impatience of moral control, and the entire destruction of all national uniformity of character, these are the evil consequences of this universal social liberty.

But this absence of example and obedience, this existence of unchecked personal tendencies, have the advantage of allowing the free development of every sort of individual merit; they permit each man to be himself, and do not oblige him to sink the personality he may possess in a servile imitation of a general model which he has been brought up to revere. On the other hand, they increase his responsibility, for while they allow him to enjoy almost unlimited freedom, they impose on him the obligation of worthily using it. Whatever, therefore, be the present moral state of the French people, in the absence of all public example and of all national interference, be it good or be it bad, it is to the dispositions, qualities, or defects of each individual, brought to light by the liberty with which he acts, that it must be attributed; if its features are unhealthy and unsatisfactory, this inevitable deduction increases their gravity, for, as they cannot be attributed to the consequences of example, it brings out in all its force the voluntary and wilful personal action which has produced them.

It is impossible to accurately describe a state of society which rests on so disorganised a basis. The French themselves, even the most intelligent of them, know it in detail only as it exists within the limits of their special circle; each one sees it in the light of his personal impressions, and often without recognising the infinite varieties of sentiment and tendencies which surround him. No two opinions agree, no two descriptions tally; the evidence is so contradictory that it is almost impossible to deduce from it any result. Even the current literature of France presents no reliable picture of the condition of the country as a whole, while its influence is almost null. There exist an immense number of vicious novels and cynical plays, which are read and listened to because of the talent of their authors, but certainly not because they present any general tableau of life, or from any general sympathy with their tendencies. And, indeed, the effect of these productions, if they have any, is limited to Paris, for it is one of the signs of the moment that the class of publications demanded in the provinces is widely different from that which circulates in the capital. Books which teach something—travels, sciences, or histories—constitute the general reading of the country inhabitants, and though the habit of reading at all is relatively limited in France, especially as compared with England, their preference is certainly in favour of the higher classes of works. The success which the publication of the letters of Madame Swetchine has just attained is a proof of the disposition to read purely moral books, provided their form be attractive; and though it may be argued that this particular work presents a special charm, and a peculiar philosophical as well as religious character, the fact is indisputable that it has been largely read.

There is a prevalent disposition out of France to accept the lighter and less moral productions of the French press, as giving correct general descriptions of life and feeling. They may be true as regards the particular and limited point of view to which they are directed, but as that point forms only one of the innumerable divisions which French character has assumed, it is evident that they can only be received as presenting the single condition to which they refer, and not as an indication of a general state, or as giving a comprehensive and correct account of all the varying moral phases of French existence.

Besides, the fact must be repeated that books are now without any tangible influence in France; they may succeed because of their literary merit, they may be largely read because they are gay and amusing, but of moral effect they have scarcely any, either good or bad.

Even a long series of detailed pictures of individual types, however exactly drawn, would only present those types themselves, without any connecting link between them, and without producing a general outline of the nation as a whole. It has no whole. The keenest eye can detect no constant and regularly reproduced form in the kaleidoscopic crowd which agitates itself in one immense confusion of all its parts, presenting, at every shifting of the scene, new features, new colours, and new objects. Every principle, every conviction, every tendency, is represented in this sea of undisciplined freedom. All the virtues and all the vices exist side by side, and seem to live in peace together without difficulty or contention, so thorough is the liberty attained. The infinite variety of personal sentiments extends to every subject; on no point is there general union of thought, still less general uniformity of practice. From the highest intellectual and moral questions down to the trifling details of domestic life, the same divergency exists in varying degrees, not from a spirit of opposition, but from the utter want of a general and adopted bond. No matter where examples be chosen, the result will be the same; the exceptions which may be supposed to exist in political parties, or in the few remaining representatives of certain fixed ideas, are more apparent than real, and even were they substantial, their application is numerically so limited that they prove nothing against the general rule.

But notwithstanding this disorganisation and the consequent excessive difficulty of correct appreciation of the relative value of the parts, certain salient features stand out in relief in the midst of the disorder, and their outline is so clearly marked that they, at all events, can be seized with precision and certainty. It is on these main points that an idea of the present moral condition of the French can alone be based. But even there it is essential to guard against sweeping or exaggerated conclusions, for the whole question is so complicated, that even its most striking and general characteristics vary in force and development according to the circumstances in which they produce themselves.

After the universal existence of democratic equality and social liberty, and the disappearance of all uniform type, the first great fact which strikes the eye in looking below the surface of French society, is the almost entire absence of religious belief amongst the men. As children, their mothers teach them the principles of their creed; almost invariably they receive their first communion; but there, with rare exceptions, ends their pursuit of religious practices. On their entry into life begins the action of indifference, which rapidly degenerates into infidelity and hostility. The women, on the contrary, as a mass, regularly frequent the churches, and many of them are really actuated by sincere devotion, which even the dangerous contact of their husband's opposition does not always destroy. These general remarks apply to every class indistinctly, from the highest to the lowest. They are true of the country villages as of the towns, of the workmen and peasantry as of the liberal professions and the richer portion of the nation. In certain provinces, especially in Brittany and Auvergne, local exceptions may be found, where the men still retain the habit of external practice and of reverence for holy things; but the rule of irreligion is none the less absolute.

In this general absence of Christian faith, of all acceptance of revelation, exists, after the effects of revolutionary convulsions, the first great cause of the indifference to community of principle, which is found to so large an extent throughout the country. Confident in their intelligence, applying its test to all subjects, the men of France admit no guide but their own reason, and are led by it to the diversity of opinions which always results from the undirected employment of human intellect. Rejecting Christian doctrines on the ground that they are not supportable by human arguments, recognising no proofs but such as they fancy are within the reach of their personal appreciation, they enter at once, by their contempt of religious convictions, on the road of independence, which they follow on so many other points, and which leads them to refuse, generally and collectively, all guides and all examples.

If their minds were susceptible of religious faith, it would follow, almost necessarily, that they would open also to adopted social principles, and to the necessity of unity of thought on the main questions of life. But in their insubmission to the control exercised by Christian belief on those who possess it, in their rejection of the discipline imposed by its application, they inevitably prepare themselves to consequently decline the social control, the social discipline, which received general obligations create in other countries.

There is no real prospect of any present change on this great question. At certain moments during the last few years, there have been passing appearances of a partial resumption of the practices of devotion; but these revivals have quickly died out again, and have left no traceable result. The mass of the young men of France are infidels, and with the natural disposition of their age and inexperience, they exaggerate the force of what they imagine to be their convictions. The so-called liberal press stimulates their already developed tendencies by holding up religion as a worn-out means of civilisation which has become almost a danger to modern society. The system under which the girls are educated is decried, because it seeks to give them principles of faith which their future husbands will not share, and which will, therefore, become a source of danger for the happiness of both. But notwithstanding these attacks, the majority of the women maintain the external habit of the faith they have been taught, and resisting the contagion which surrounds them, they persistently transmit that faith to their children: their power is limited to their action on the young, but they use it steadily as long as they possess it.

But while religion is thus abandoned, and its controlling and regenerating influences thus annulled, it is curious to observe how comfortably and pleasantly the religious and irreligious live together. There is no intolerance on either side;

each frankly allows the other to have its own opinion and to follow its own path. The universal give-and-take system which regulates all the relations of life in France applies here in all its force. It is religion itself which is attacked by the masses, not those who practise it. The ceremonies and processions which take place publicly in France, even the columns of black and grey penitents who join them in the south, provoke no hostility or contempt from the lookers-on, however little they may sympathise with the scene before them. The sentiment of liberty is so really felt, that violent contradiction is scarcely possible.

It is not to political and revolutionary consequences alone that the destruction of religion should be attributed; they have certainly materially aided to produce it, especially amongst the lower classes, but it has been confirmed by the emancipation from control which now constitutes the basis of French existence, and which applied here, as in all the details and directions of life, renders faith an irksome burden unworthy to be borne by the liberated minds of this generation. There is, in the whole subject, a complication of causes and effects reacting mutually on each other, which renders it extremely difficult to determine the limit between the two. The want of religion and the possession of personal liberty co-exist, and each stimulates the other, but the precise proportions of their relative effects cannot be defined.

Next to the general want of religious feeling, the most striking of the bad features of the present state of the French is the scepticism and indifference with which the duties of married life are regarded by a considerable part of the nation. And here, indisputably, the women deserve some part of the blame. With all the immense interest they have in maintaining pure and intact the vigour of the marriage bond, numbers of them accept and support it rather as an opportunity of acquiring an envied position than as a grave duty of which the responsibility is compensated by the special charm of the new causes of happiness it offers.

The system under which marriages are prepared in France is the main cause of these careless impressions. Not only does it increase the uncertainty of a happy result, because it rarely affords the guarantee of a previously existing real affection, but it brings husband and wife together for first motives in which they have generally scarcely any share, their parents arranging their union because motives of mutual interest or relative position render it apparently desirable. They each accept the other for a lifelong companion because they have been brought up with the idea of receiving instead of choosing their spouse. This is especially true of the girls, for the men have a relative power of selection, but it must not be imagined that marriages are imposed by fathers on their children; such cases doubtless exist, but they are extremely rare. The rule is, that before the prétendant is allowed to present himself in the family, his character and qualification must be examined and approved; but that examination, while it removes one source of danger, in no way implies that if he fails to acquire the sympathy of the girl he seeks to marry she is to be forced to accept him all the same.

In practice, however, the desire for early marriage is so strong amongst the young women of the middle and upper classes in France, and even of the labouring population too, though in a less degree, that they almost always at once accept any husband suggested to them by their parents; and it is to the precipitation with which they voluntarily rush into matrimony, without assuring themselves that their hearts are really secured, that the subsequent reaction should be attributed, rather than to the supposed despotic action of the parents, which, though it may have existed in previous generations, is certainly not exercised now. The girl is free to accept or refuse, but her ignorance of life and character, the want of knowledge of the world in which she has been brought up, her long habit of confidence in the councils of her father and mother, and her eager desire to exchange the insignificance of her position for the authority and independence of married life, combine to induce her to see all sorts of charms in the husband offered her. She marries with the idea that she is in love, but, as she is never allowed to be alone with her intended, or to have any sort of intimate communication with him, it is not till she has really tried her new existence that she learns whether she is right or wrong.

This system applies everywhere in France. What are called love marriages in England are so rare that they may be said not to exist. The girls are so closely guarded by their mothers that they have no opportunity of forming attachments, and their education teaches them not to regard marriage as a voluntary act to be produced by their own free will. There are, however, signs that they are beginning to acquire greater liberty of action, and it is possible that they may succeed in time in modifying the present system in favour of their own initiative.

Delivered ignorant and confiding to their husbands, they suddenly find themselves in the position of comparative independence, which was the object of their young ambition. Surrounded by new temptations, stimulated by new desires, too often directed by their husbands towards a line of action and principle identically contrary to all their previous ideas, taught by their new experience how different are the effects of the education of men and women, frequently disappointed in their hopes of steady affection, they grow too generally to regard the married state as one of position in society rather than of duty to the husband. Their appreciation of the tie they have accepted becomes modified, their attachment to virtue and their rigorous obedience to its laws may remain unaffected, but their views of their future life take a direction in which the world assumes the greater share of importance and the husband the lesser. It is probable that the majority of French marriages, in the middle and upper classes, arrive, after a certain time, at this result.

And if it is attained, the husband cannot reasonably complain of it; for it is generally, directly or indirectly, his own work. He marries comparatively late in life, either because he has exhausted other sources of distraction, or from motives of interest or *convenance*, rarely because he is led to the step by strong affection. He frequently comes to it without religion, and almost always without any clear sense of the obligations which he accepts. He admits, as a rule, that he is not bound to observe absolute fidelity to his wife, and in some cases his doubts are carried so far, that he is not even sure that he will be able to maintain her in absolute fidelity to himself. When men believe in nothing, even this remarkable form of scepticism is not extraordinary. After the first pleasant months of his new existence he not unfrequently returns to his previous habits, and leaves his wife alone to create her own distractions. She necessarily throws herself on others for amusement, or, if she really loves her husband, for consolation; and without admitting for one instant that French wives are generally unfaithful to their husbands—a monstrous idea of which even a limited knowledge of French homes will always prove the falsity—it is certain that many of them finally cease to regard their husbands as the great object of their lives, as their natural guide and friend in moments of doubt or difficulty. They learn to look on marriage as a necessary social condition, of which the great object is to provide a defined position for women, but not as a bond which unites two hearts for better and for worse.

This unhappy result is certainly arrived at in an immense number of cases, and it is rendered more easy by the general unwillingness of the French to have children. If those tender ties between man and wife existed in every case, indifference to each other would forcedly become more difficult to attain, and their first affection would be almost necessarily strengthened and developed. But the statistics of the population of France which are given in the following chapter prove the striking fact, that the thirty-six millions of to-day produce almost fewer children than the twenty-four millions of 1788, so general is the application of the Malthusian theory of so-called prudence. The astonishing devotion of French mothers to their offspring, and the remarkable pictures of domestic concord presented in quantities of families where three generations live together in affectionate harmony, are proofs enough that children create virtue in their parents, and that their absence is an absolute evil. It is in the mother's excessive love for them that she brings out the womanly tenderness of heart by which the husband does not care to profit, and there she atones for her own indifference to him. But mutual coldness is almost rare in cases where children are allowed to arrive; the family tie, in its fullest sense, is perfectly understood in France, and if the French would but accept the common law of procreation, instead of so generally evading its effects, they would obtain for themselves not only a higher moral tone, but also far happier homes. In a multitude of cases the husband emulates the active and tender maternal care which the wife exhibits. Nowhere are children so intimately bound up in the existence of their parents; in no case are they left at home, or abandoned to the hands of servants; no father is ashamed to play with his child in public, or to put in evidence the affection which he feels. It is singular, that with such sentiments towards their offspring —when they have any—the men of France should so frequently refuse to become fathers.

It is impossible to imagine a more admirable development of fondness and watchful care than that with which most French mothers bring up the young. Their untiring vigilance never ceases; their anxious solicitude never flags; their children are the great object of their thoughts. It would be difficult to exceed the touching maternal devotion which the great mass of them exhibit. In thousands of cases the girls sleep in their mother's room from the hour of their birth to the day of their marriage. Separation from the husband—where it exists—has this advantage: it permits an absolute abandonment of the mother to the child; in the excess of her motherly sentiment the wife finds a safeguard from the provocation of the husband's neglect, and from the temptations to which the want of all home occupations would expose her.

The children amply repay the self-sacrificing tenderness of which they are the object; indeed, in the unsatisfactory picture which the present state of France exhibits on certain points, the astonishing perfection of the bond between the parent and the child, at all periods of life, is a bright and striking exception.

This mutual attachment between the offspring and its authors is a tendency so thoroughly honest and ennobling, that it seems almost ungrateful to add a criticism to it. But it cannot be forgotten that this intensity of affection, this absorbing action of the parental and filial tie, have the effect of creating for children too prominent a place in early life. It cannot be denied that they now occupy in France a position of which the importance is so great, that it is not only a source of frequent annoyance to strangers, but that it may also become a danger for the character of the children themselves. Brought up from their earliest infancy to feel that they are the great object of their mother's thoughts, spoilt and unchecked by her often inconsiderate fondness, they too frequently acquire an undue conviction of their own weight in the constitution of their family, and they arrive imperceptibly at a disposition to play at little men and women almost before they have learnt to spell. It is the development of this cause which is leading French girls to the liberty of action to which allusion has already been made.

If the evil progresses it is possible that it may cure itself by its own excess, for French women are not only adoring mothers, they are intelligent and independent thinkers too; and if they should recognise that bad moral consequences are resulting from their present system, of which the full application is very recent, it may be that they will voluntarily modify it, if it be only to prove the sincere and well calculated intentions which actuate them in the matter.

The third defective feature in the present condition of French morality is delicate and difficult to indicate.

During the last thirty years, and especially since 1852, there has been a remarkable extension of trade, manufactures, and Bourse operations of every kind. Nearly all classes have been more or less mixed up in the general speculative movement; the young men have been diverted in large numbers from the liberal professions and administrative careers, towards commercial and industrial positions; a tendency has sprung up to regard worldly success as the best test of talent and capacity; and the pursuit of money in every form has become the great object of a considerable proportion of the educated classes. This disposition has been stimulated by the growing necessities created by growing luxury; by the envy and jealousy of those whose incomes have not allowed them to rival the brilliant existences around them, and who have sought to acquire that power by every means at their disposal; and by the existence of an example from above which, wanting where it could be exercised for good, is present for harm in this single case.

This rush after gain has done most infinite moral harm to those who have been engaged in it, for it has too often destroyed the appreciation and application of the fine shades of delicacy of conduct, and has opened a school in which success is the only element considered.

With their many brilliant and solid qualities; with their animated susceptibilities and their highly developed capacity for friendship and devotion to each other; with their quick intelligence and remarkable aptitudes; brave, and often quarrelsome for nothing; resenting, sword in hand, all imputations on their honour and their name; regarding duelling as a necessity, and applying it without care of its legal consequences, —too many of the French, with all this appearance of high-toned feeling, yield too easily to the temptation of money. They judge their state on this critical question with a severity and a harshness which no foreigner could decently employ. They deplore between themselves that the public standard of delicacy should have fallen to such an ebb, and that even those whose position would seem to oblige them to act with rigid probity, are the first to profit by that position to sell their names and their influence.

But while these striking and regrettable features reveal themselves in every class, and, in varying degrees, in the majority of every class, they are accompanied by some admirable qualities.

The whole nation is affectionate and sincere in its attachments, and full of sympathy for the difficulties and sufferings of others. Nowhere does the sentiment of camaraderie attain such perfection and such constancy. Nowhere do men help each other with more cordial good will, and with less affectation of rendering service. This excellent disposition is particularly developed amongst the young men of the towns, who are almost all formed into small circles or sets, of which the object is not only social intercourse, but also the material assistance of each other. This banding together in small societies implies almost an involuntary protestation against the individual selfishness which isolated personal action would produce, and it furnishes strong evidence that, notwithstanding the absolute liberty enjoyed by each separate member of those societies, affection for others is still a fundamental virtue of French character.

The remarkable attention of the women to their domestic duties is another general merit of this generation. In every class, with but rare exceptions, they direct their households with an intelligence and economy which partly explain the appearance of luxurious expenditure which has become so general of late years in France. The limited total of the account-book of many a French family would astonish English housekeepers, who would not comprehend that such external results can be obtained at such a price.

The singularly ingenious domestic aptitude of the women of France, and their active discharge of their home cares, is the key to the difficulty.

The force of the parental and filial tie has already been indicated.

In addition to these specific merits, the French possess a negative quality of immense importance. It is impossible to imagine a people more totally free from hypocrisy or humbug. It is true that they have no motive whatever for giving in to this peculiarly English defect; their liberty is so real that, in their unlimited power of doing exactly as they please, they have no reason for offering the "homage which vice renders to virtue." They can be vicious if they like, and nobody will stop them; and on this very fact a most powerful argument in their favour might be based, for all their faults come out in the open light of uncontrolled action, while those of many other countries are carefully hidden under the uniform of hypocrisy which the strong hand of public opinion imposes. The French are frank and straightforward, for the simplest of all reasons, that they have no motive for being otherwise.

These various qualities exist far more universally than the defects which have been enumerated before them; and, even as regards the latter, it must not be imagined that their practice is absolute, and that the whole French nation should therefore be included in one sweeping condemnation. A large minority of the population are free from the prevalent faults of their countrymen, and present admirable examples of virtue and merit. These exceptions exist in every class, and the association of high moral qualities with the independence of action and brilliancy of conversation which render French society so attractive, constitutes an admirable whole, of which scarcely an example can be found elsewhere.

The state of the working classes, while offering generally the same great characteristics as that of their superiors in education and position, presents one remarkable merit. They have come out unscathed from the dangerous contact of the socialist principles which were current among them ten years ago, and they have abandoned the tempting but fallacious theories of all levelling equality with which revolutionary teachers have sought to indoctrinate them. They are, for the most part, honest and well disposed, courteous, sober, and simple. But their special merit is that they have voluntarily forsaken socialism, and have frankly accepted the equality which really subsists. Using the opportunities so easily acquired in the present state of French society of rising by good conduct and industry to positions of comfort and respectability, they have ceased, as a body, to look on the upper classes as bars in their road which are to be forcibly removed when occasion offers. Socialism told them to regard charity as an insult, and property as a robbery, and to hate Christianity because it taught charity. It is because they have come out of this dangerous trial without being permanently affected by it that they prove the innate good sense and sound appreciation of the duties of life, which really exist among them in a marked degree, and that they consequently present, as a class, a very satisfactory feature in the state of the community.

While the workmen of the towns, who had nothing to lose, were temporarily converted to the idea that they had everything to gain by social convulsions, the peasantry, on the contrary, have always respected property, because they possess it. With but few exceptions they have never been socialists at all. They present the same main outlines of character as the manufacturing classes, who are indeed, to a great extent, recruited from their ranks, but they are far more rapacious and cunning than the latter. They are not generally pleasant to deal with; and if a normal dislike of the rich exists anywhere in the lower French population, it is certainly amongst them that it will be found. The few remaining families of the old nobility who still retain country positions are, almost without exception, respected and liked, because they do their duty as neighbours; but, unfortunately, the present possessors of country-houses are most of them successful traders, who buy them from motives of vanity, and with no notion of discharging any charitable duties around them. They think they prove their superiority by an affectation of haughty grandeur, and depend on their money instead of their education and good works for the effect which they fancy they produce. Provoked by their selfishness, the peasants naturally hate them, and in certain districts the proprietors of châteaux might find themselves in a disagreeable position in the event of a prolonged revolution. But this local irritation is to a great extent excusable, and scarcely constitutes a ground of special blame against the agricultural class as a whole.

The general state of French morality thus offers a series of clearly marked good and bad qualities, which exist very generally throughout the nation. Their good qualities are scarcely likely to disappear; must the same be said of the bad ones?

Can it be argued that their state is essentially one of transition, that they have been brought to it, as a whole, by the consequences of their modern political history, and that if the cause be not renewed its effects cannot fail to die out? This is the opinion of many intelligent Frenchmen, who consider that, restored to calm, reassured as to the destiny of their country, and governed with the avowed object of raising their moral standard by the renewed influence of education and example, they would rapidly return to high moral convictions. It is urged that their remarkable capacities, their special and highly developed faculty of imitation, would enable them to quickly resume the position which they have abandoned on certain points, and that they would recover it, with all the vigour which strong reaction invariably brings into play, if once a guide acquired their confidence, and right means were employed to counteract the known and evident evils of their present position.

But is this opinion just? Is not the universal freedom of life and sentiments in France in itself an insurmountable difficulty in the way of all common national action? If so, a change in the great present defects of French character can only be produced by personal and isolated movement, for that freedom will never be abandoned. It is impossible that the French can ever be brought, by any efforts or any teaching, to accept a social master, and still less anything approaching to the icy rule of "respectability," as it is understood in England. Supposing even that they readmit religious convictions, that they learn to respect and cherish the married state, and that they reacquire a high standard of personal delicacy, all of which results, excepting the latter, are apparently improbable, they will never abandon the right of individual social liberty, of independence towards each other, of which they have become possessed at the price of seventy years of constantly recurring convulsions. This conquest is too precious to be given up; it is the complement of the suppression of social classification, which is now the very essence of French life; never will they consent to copy their existences and their opinions from one general model, applied to every rank and every position, or to allow individuality to be crushed by the voice of a majority. How, then, is a reaction to begin?—how is it to be organised? If they return to a higher level of feeling on the points in question, it can only be because each individual freely accepts the change; in such a case it would be effected with ease, because the full force of voluntary personal action would stimulate it. But as imposed example will never be accepted, and pressure never be supported, how is a reaction to be commenced?—and how are all the separate wills of France to be turned to the same object?

It seems reasonable to believe that individual improvement may occur, but the irradicable possession of personal liberty will never allow the universal assimilation of the whole people into one obligatory uniform moral type; it will, according to all appearances, continue to present a discordant picture of defects and merits subsisting side by side, without any general movement in one direction.

CHAPTER II.

POPULATION.

THE population of France is counted every five years. The last census was made in July, 1861. There is also an annual return, published by the ministry of the interior, of the number of births and deaths, but this return is always two or three years in arrear, and 1858 is at present the latest date to which it extends.

The preceding census returns of 1856 showed 36,039,364 inhabitants, and revealed, to the astonishment of Europe, that during the two years, 1854 and 1855, the whole population of France had actually diminished; that during the five years between 1851 and 1856 the total increase of number had amounted to only 257,736, which was at the rate of 0.14 per cent. per annum; and that during these same five years the population of 54 departments out of 86 had diminished together by 446,855, this number, plus the general increase of 257,736, constituting an augmentation of 704,591 in the other 32 departments, Paris alone gaining 300,000 thereof.

It is, however, evident that most of these remarkable results were principally due to accidental circumstances. The cholera, the Crimean war, and a famine, arrived successively during the five years in question, and it is fair to urge against the admission of the results of these five years, as an indication of the present normal movement of the population of France, that in 1856 the increase amounted to 117,099, in 1857 to 81,924, and in 1858 to 95,320.

The results of the census just completed, further prove the correctness of this opinion. It shows a population of 37,382,225,* but as the three new departments created by the annexion of Savoy and Nice contribute 669,059 inhabitants to that total, the figure for comparison with 1856 stands at 36,713,166. The augmentation since the latter year amounts, therefore, to 673,802, or 0.375 per cent. per annum. But this new census continues to show, though in a less proportionate degree, the same depopulation of certain districts, and the same rapid increase in certain others. In 29 departments there has been a total loss, since 1856, of 157,159 inhabitants, so that the gain to the other 57 old departments is really equal to 830,961, of which the Seine alone has absorbed 226,241, and the

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* *Moniteur*, January 13, 1862.

Nord 91,027, or, between them, three-eighths of the entire increase.

But while the mean annual progress has thus advanced from 0.14 per cent. for the five years between 1851 and 1856 to 0.375 per cent. for the period between 1856 and 1861, there remains the fact that since the commencement of the present century the annual rate of increase of the population of France has diminished most materially. The variation is not exactly perceptible in the returns of each successive year, which naturally present fluctuations in each direction, but the general result is, that whereas the average yearly augmentation was at the rate of 0.646 per cent. from 1801 to 1836, it was only 0.445 per cent. from 1836 to 1850,* and 0.14 per cent. from 1851 to 1856, rising again, however, to 0.23 per cent. in 1857, and to 0.375 at present. The cause of this persistent diminution is as evident as the diminution itself, the falling off in the number of births is its sole source. For the ten years between 1776 and 1785, with a population of 24 millions, the annual average of births in France was 960,000, or 1 to 25 of the whole population; while in 1856, with a population of 36 millions, the births were only 950,000, in 1857, 940,000, and in 1858, 969,000, which is at the rate of 1 child to 37 inhabitants. Not only, therefore, is the average productiveness one-half less now than it was eighty years ago, but, which is more remarkable still, one-half more people have recently been generating a smaller total number of children.

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* Annuaire de l'Economie Politique, p. 15, 1853.

Whichever way the question is examined the same facts come out, the disproportion of course diminishing as the date of comparison becomes more recent. Calculating on the proportion between the numbers of annual marriages and legitimate births, it is found that in the ten years comprised between 1820 and 1830 the mean annual births were 3.64 to each marriage contracted; but in 1857, which may be admitted as a fair average year, the relation between the legitimate births and the marriages had fallen to the following ratio:*

In the department of the Seine . .	2.26	births for each marriage
In the towns generally	2.97	„ „
In the rural districts	3.03	„ „
The general average for all France was	2.94	„ „

The productiveness of the marriages has, therefore, decreased from 3.64 to 2.94 per cent. during the last thirty years—more than one-fifth. Calculating, again, on the proportion of children to each family, it appears that in 1821 a child was born to every 5.8 families; but in 1857 there was only 1 child to 7.6 families, which means that only 2 families out of 15 now have a child annually, while the proportion was

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* Annuaire de l'Economie Politique, p. 9, 1860.

2 out of 11½ forty years ago; here the diminution is more than a quarter.

These differences of number are so considerable that they impress even those who have had an opportunity of appreciating the disposition of the French to shrink from excessive or improvident paternity. The reduction of production surpasses the estimate which a rough calculation of the probable consequences of this species of prudence would reasonably arrive at: the fact that three families now produce fewer children than two did before the Revolution would not be theoretically admitted even by those who know to what an extent the cautious French apply the saying, "Make the soup before you make the child."

And this diminution is the more striking because it has occurred simultaneously with a small but steady increase in the number of marriages. Bearing, therefore, in mind the admitted fact that nine-tenths of the births of every year result from marriages contracted during the two previous years, it follows that the more recent marriages are precisely those which present the greatest development of sterility.

It should, however, be remembered that diminishing production is not peculiar to France alone. The same tendency shows itself, but in a far less degree, in England and most of the other countries of Europe. Reproduction is everywhere less rapid, though varying in its rates of decrease in different localities. A comparison of the figures bearing on the subject suggests the idea that the greater the degree of civilisation attained, and the greater the density of the population, the fewer are the children produced. Whether this result arises from less favourable sanitary conditions (though the almost universal augmentation of the duration of life would seem to contradict this hypothesis), or whether, as is indisputably the case in France, it springs from voluntary sterility, the fact is general. England, notwithstanding its high civilisation and thick population, still produces annually 1 child to every 29* inhabitants, which is proportionately one-fourth more than France, and among the scantier inhabitants of Russia and Prussia, and in the warm plains of Lombardy, the yearly rate of production remains 1 to 26.† But though these rates are still so much superior to the figures just given for France, they are lower than they were a century ago; in every country in Europe reproduction is less rapid than it was.

This subject, however, involves so many considerations, it is so intermixed with all the problems of national health and morality, and a satisfactory explanation of it is so improbable, that it would not be useful to examine it further, especially as, in so far as France is concerned, the diminution in question may safely be assigned to its real cause, unwillingness to have children. Fortunately for France, the ratio between the augmentation of the duration of life and the diminution of production still remains rather more than compensating, and suffices to maintain, though in a scarcely perceptible degree, the general progress of number. The average duration of existence has risen since the Revolution from 27 to 38 years, and it appears to be still advancing. It is not, therefore, to be feared that the diminution of the whole population which accidentally took place in 1854 and 1855, is likely to assume a permanent character for the moment, whatever may be the result hereafter.

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* Statistical Abstract, No. 8, p. 68, 1860.

† Elements de Statistique, p. 192.

The mean annual augmentation of 0.445 per cent., which took place during the fifteen years ending in 1850, was very unequally distributed over the surface of France. It was only 0.3 per cent. in the country, and it amounted to 1.6 per cent. in the towns; in both these figures the effect of the movement from the rural districts into the towns comes out strikingly. The towns, again, varied materially between themselves in their rate of increase; those on the coast gained as much as 2½ per cent. per annum, while the six great garrison towns advanced 1.6 per cent., and the manufacturing towns 1.4 per cent.

These figures, which indicate the effects of migration, do not at all correspond with the increase of births over deaths in the same localities. In 1857 the proportions of this increase were:*

In Paris	0.50	per cent.	of the population
In all the other towns . . .	0.16	„	„
In the rural districts . . .	0.23	„	„

which proves that the births are relatively one-half more numerous in the country than in the towns, though the real population of the towns, fed by importations from the country, advances proportionately five times faster than that of the rural districts. The relation necessarily varies in different years, but these rates are probably approximate averages. It is worthy of remark, that the superiority of births over deaths is three times greater in Paris than in the other towns of France, but this is partially explainable by the circumstance that a considerable number of women come to Paris from the provinces to be confined.

It has been already remarked that the feebleness of the general increase from 1851 to 1856, as well as the special diminution of the population in 1854 and 1855, are attributable to the consequences of the cholera, the Crimean war, and a famine, and that they can only be regarded as an accident independent of the present normal conditions of the subject. In 1856 the increase of births and marriages and the reduction of deaths, which, as Montesquieu first observed, seems to regularly follow every period of special mortality, regained the ground lost during the two preceding years. This sudden recovery from the consequences of bad years appears to be a natural law, for since the establishment of regular returns in France, it has been observed after every sanitary crisis. For instance, the great cholera of 1832 added about 130,000 deaths to the total mortality of the preceding year, but in 1833 the births rose 31,797, and in 1834, 48,304, while the marriages of those two years showed an increase of four and nine per cent. respectively on the average of the five preceding years.

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* Annuaire de l'Economie Politique, p. 3, 1860.

The proportion of male to female births is generally as 105 to 100. In Paris and the towns there are 103½ boys to 100 girls, and in the country 106 to 100. But if still-born children are included, the average is 106¾ boys to 100 girls. This relative augmentation proves that the greater mortality observable among male children attacks them even before their birth: 58 per cent. of the still-born children are males, and only 42 per cent. females. According to a Belgian table, 58 per cent. are born dead, 20 per cent. die during delivery, and the remaining 22 per cent. immediately after birth. As might be expected, the average of children still-born is higher in Paris, and in the towns generally, than in the country. The proportions are (relatively to the whole number of births), 6.52 per cent. in Paris, 5.55 in the other towns, and only 3.65 per cent. in the rural districts. There are, therefore, not only half as many more children produced in the country than in the towns, proportionately to the whole population of each, but the number born dead is about one-half less in the former than in the latter.

The general proportion of illegitimate children in France is 7.3 per cent. of the whole number. It is said to be the same in England. In Austria, the proportion is 20 per cent.; and in Saxony, Bohemia, and Finland, 12½ per cent.* It falls to the minimum of 3 per cent. in Lombardy. But as all these latter figures are calculated on single years, they should be received with caution, as they may not represent exact averages. The proportions of natural children in France, applied also to the whole number of births, are 27 per cent. in Paris, 12 per cent. in the towns generally, and only 4.2 per cent. in the country. It must, however, be borne in mind that a certain number of country girls come into the towns to be confined in the public hospitals, and also, that as public opinion exercises a direct and powerful influence among the scanty inhabitants of the rural districts, a large proportion of children illegally begotten are legitimately born, because their parents marry in the interval between the two events under the pressure exercised by their families and friends. Of the illegitimate children born in the towns, about 30 per cent. are recognised and adopted by their parents, while in the country the proportion thus adopted is double—it rises to 60 per cent.: 6½ per cent. of the whole number are regularly legitimised, and acquire all the rights of children lawfully begotten, by the application of an admirable provision of the French code, which permits the complete legitimation of children whose father and mother marry after their birth. It is worthy of note that 6 per cent. more boys than girls are recognised by their parents.

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* Elements de Statistique, p. 222.

The heavy proportion of natural children in Paris is still inferior to that which exists in many large towns: at Stockholm, Mayence, Prague, Oporto, and Lisbon, for instance, one-half the births are illegitimate. The number of persons illegitimately born in all Europe is estimated at twenty millions.

M. Moreau de Jonnès has published* a curious table of the proportion of illegitimate births in France at various periods of the present century. He shows that from 1800 to 1815, during the wars of the Empire, the average number was 1 to 564 inhabitants, while from 1816 to 1830, during the comparatively rigid epoch of the Restoration, it rose to 1 to 417; from 1836 to 1850, under the Government of July, the proportion regularly improved: it shows only 1 to 523 for the last five years of that period. The comparative feebleness of the illegitimate births during the first Empire cannot be attributed to any better state of public morality at that time, but simply to the absence at the army of a large part of the men of the country.

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* Elements de Statistique, p. 219.

The proportion of illegitimate children who are still-born is, as might be expected, nearly double that which is found among children born of married parents. The poverty and misery in which many of the mothers of these children await their confinement is an ample explanation of this.

The number of children abandoned at the hospitals of Enfants Trouvés fell from 1 to 22 of the total births in 1816, to 1 to 38 in 1845.

It results from these various figures that the superiority of the country over the towns is most marked in all that constitutes the outward and tangible tests of public morality. The proportion of illegitimate children is 4.2 per cent. in one case against 12 per cent. in the other (subject always to the consideration that the town hospitals offer facilities for delivery, by which the country profits). The country adopts 60 per cent. of its illegitimate offspring, while the towns adopt only 30 per cent.; there are 5.55 per cent.

of still-born children in the towns (not including Paris) against 3.65 in the rural districts; and, finally, though the relative number of marriages is less in the country than in the towns, the country produces proportionately slightly more legitimate births than the towns.

The influence of the seasons on the production of children is very sensible. On an average 4 per cent. more children are regularly begotten between April and August than between August and April. This is especially observable in the country districts. The month of March, which corresponds to Lent, always shows a marked diminution of procreation.

The hours at which children are born are relatively as follows, as far as can be decided, from the insufficiency of the information published on the subject:*

From 6 to 12 A.M.	21½	per cent.
„ 12 to 6 P.M.	23½	„
„ 6 to 12 P.M.	25	„
„ 12 to 6 A.M.	30	„
	100	

The largest number of births appear, therefore, to take place from midnight to morning, and the smallest number from morning to noon.

The annual number of marriages has risen from 1 marriage to 128 inhabitants on the average of the ten years included between 1820 and

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* Annuaire de l'Economie Politique, p. 24, 1857.

1830, to 1 to 126 from 1840 to 1850, and to 1 to 122 in 1857. In the latter year the marriages were composed as follows:*

In the department of the Seine	18,155	marriages	1 to 95	inhabitants
In the towns generally .	70,153	„	1 to 116	„
In the country . . .	207,202	„	1 to 126	„
Total . . .	295,510	„	1 to 122	„

These figures show that marriages are more numerous in proportion to the density of the population. The general rate of marriages being slowly on the rise, and the mean duration of life increasing also, it follows that the number of married people is, from both these reasons, always on the increase in France: 46 per cent. of the whole population are married (including 7 per cent. of widows and widowers); the present mean duration of married life is about 24½ years.

The marriages are composed as follows:†

Bachelors and spinsters	83	per cent.
Bachelors and widows	4	„
Widowers and spinsters	9½	„
Widowers and widows	3½	„
	100	

It results from this evidence that while 13 widowers marry a second time, only 7½ widows try matrimony again. And this is the more remarkable, from the fact that the mean duration of life being longer for women than for men, there are always twice as many widows as widowers disposable; if, therefore, the tendency to marry a second time were not very much stronger in men than women, the result would naturally be the exact contrary of that proved by the above table.

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* Annuaire de l'Economie Politique, p. 9, 1860.

† Ibid., p. 10.

Frenchmen, as a rule, do not marry very early in life; but people marry younger in the country than in the towns, especially in Paris. This may be considered to explain the somewhat greater fecundity of the country marriages; but as the country produces proportionately more male children than the towns (2½ per cent.), can it be supposed that young married couples have a greater tendency than older people to generate boys, and that the task of supplying girls falls more especially on the latter?

The lists of the respective ages at which marriage is contracted reveal some curious facts. Excluding Paris, the average of first marriages are between men of 28 years of age and women of 24: this is natural enough; but it appears that when men marry before they arrive at the age of 20, they invariably choose wives older than themselves. When the husband is above 20, then the average gives him a wife younger than himself, in a proportion which increases regularly with the age of the former. Bachelors up to 30 marry widows older than themselves;

at 30 the reverse begins. Widowers up to 35 marry widows of a greater age than their own.

The general rule, just stated, that Frenchmen do not ordinarily marry very young, is certainly a good one in a sanitary point of view, for nothing appears to be more killing than to marry before 20. A return, based on the mortality of 1854 (which was extremely high), gives the following proportions of deaths for married and unmarried people of the various ages named:

Age.	Married.	Unmarried.
15 to 20	29.3	6.7
20	6.5	11.3
30	7.1	12.4
40	10.3	17.7
50	48.3	29.5
60	35.4	49.9
	100	100

So that the mortality is four and a half times greater among the married than the unmarried between the ages of 15 and 20.

The seasons at which the greatest number of marriages take place are before Lent and during the summer.

One-third of the men married, and rather more than half the women, cannot write.

Since 1801 the rate of mortality in France has fallen from 1 to 33 to 1 to 43 of the population; in 1846 and 1850 it was only 1 to 47. In 1857 there were 858,785 deaths, proportioned as follows:

In the department of the Seine . .	1 to 37.6 inhabitants
„ towns	1 to 35.7 „
„ country	1 to 44.9 „
General average	1 to 43 „

The influence of the country is here again evident in the greater duration of life, while the special composition of the rich and varying population of Paris shows itself by a superiority, though of less degree, over the other towns of France.

The hours at which people die stand relatively as follows:*

From 6 to 12 A.M.	23 per cent.
„ 12 to 6 P.M.	27 „
„ 6 to 12 P.M.	28½ „
„ 12 to 6 A.M.	21½ „
	100

The largest number of deaths, therefore, take place in the evening, and the smallest number from midnight to morning, which latter fact is directly contrary to what occurs as regards births.

A very singular and remarkable circumstance is, that the movement of mortality appears to be turning against the grown-up men. A table drawn up by M. Demonferrand, of the deaths per sex per age, between the years 1817 and 1831, compared with a similar table prepared by M. Heuschling, for the period between 1840 and 1849, shows that the deaths among children under 1 year fell, in the interval between the two calculations, from 22.51 per cent. of the total number, to 21.60 per cent. The diminution was about equal for each sex, the proportion being 12.45 per cent. of boys to 10.06 per cent. of girls. From 1 to 10 years of age the mortality fell from 18.61 per cent. to 14.50 per cent., still without any variation of the proportion between the sexes. From 10 to 20 there is no change. But from 20 to 30 the deaths rise from 6.53 per cent., in the first period, to 7.30 per cent. in the second; and the whole of this augmentation is supported by the male sex, the rate of decease among men having risen from 3.11 per cent. to 4.19. The same result occurs again between the ages of 30 and 50, the male deaths rising from 5.41 to 6.32 per cent., while the female deaths remain stationary.

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* Annuaire de l'Economie Politique, p. 39, 1857.

There is no sufficient explanation of this growing mortality among adult males, and it is to be hoped that later tables will show a different result, for the economy of life among children attained between the two periods in question can scarcely be accepted as compensating increased mortality among the men of the country at their most productive period of life.

In England the average of deaths is only 1 to 47 inhabitants;* and in Iceland it rises to 1 in

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* Statistical Abstract, No. 8, p. 68, 1860.

59; while in the Roman and Venetian states it falls to 1 to 28.* Throughout the cold latitudes the mean duration of life is longer than in warm climates.

The annual mortality among women ranges pretty regularly at about 2 or 3 per cent. above that of the male sex, although their average duration of existence is longer than that of men. This circumstance, added to the fact that the male births are 5 per cent. in excess of the female births, would bring about in a few years a great majority of male population, if the tendency were not constantly counteracted by the many causes which absorb the men of the country, for military service, navigation, emigration, and foreign trade. These causes place the women in a majority, the whole population being composed of 49.73 per cent. of males, and 50.27 per cent. of females. If these statements appear contradictory, it is because the results of the census and of the tables of births and deaths can never be made to tally, in consequence of the continual displacement of part of the male population.

The males are subdivided into—

Bachelors	56.04	per cent.
Married	39.26	„
Widowers	4.70	„
	100	

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* Elements de Statistique, p. 283.

and the females into—

Spinsters	51.99	per cent.
Married	38.63	„
Widows	9.38	„
	100	

Only 1.06 per cent. of the entire population is composed of foreigners, of whom the number of English is under 25,000.

Of the 36 millions of inhabitants of France, about two-thirds live by the culture of the soil, and about a sixth by manufactures and trades; the remaining sixth includes the liberal professions, rentiers, domestic servants, and the unclassed.

M. Moreau de Jonnès gives the present approximate numbers of each division as follows, but he expressly states that they cannot be considered as absolutely exact; indeed, as he calculates the details of the liberal and general professions proportionately on the census of 1831, it is probable that in certain classes there are considerable inaccuracies:*

Agricultural population, men, women, and children		24,000,000
Manufacturing population do.		2,500,000
Arts and trades do.		3,800,000
Total of the working population		30,300,000
Magistrates and government servants	112,848	
Employed by the parishes	58,363	
Employed by private individuals	84,184	
Pensioners	63,238	
Soldiers and sailors (actually in France)	356,732	
Carried forward	675,365	30,300,000

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* Elements de Statistique, p. 379.

Brought forward	675,365	30,300,000
Doctors, druggists, &c.	26,758	
Lawyers, &c.	29,262	
Professors and teachers	58,084	
Architects, sculptors, painters, musicians, and actors	19,482	
Literary men	4,465	
Ecclesiastics	52,882	
Students	95,187	
Other liberal professions	38,644	
Persons living on their property	523,970	
Total of males	1,524,102	say 4,109,000
Wives and children of the above	2,585,460	
Domestic servants (two-thirds women)		906,500
Unclassed: Prisoners	39,471	say 683,500
Sick in the hospitals	71,113	
Beggars	217,046	
No means of existence	336,902	
Public prostitutes (police list)	16,239	
		36,000,000

It should be repeated that this list can only be considered as a general indication of the proportionate division of occupations in France, and not as an exact table.

The annual amount of wages paid is estimated at 179,000,000*l.*, of which the

Agricultural population gains	£120,000,000	67 per cent.
Manufacturing workmen	30,600,000	17 „
And the arts and trades	28,400,000	16 „
	£179,000,000	100

These sums divided per class on the total numbers of each, women and children included, give a rate per head per annum of—

Agricultural population, working 200 days in the year	£5	0	0
Manufacturing population „ 300 „	12	5	0
Arts and trades „ 300 „	8	7	0
The general average is	5	18	0

If these figures are correct, and as they are published as part of the official statistics of France they ought to be received as such, the agricultural population, with *5l.* per head per annum to live on, has for each family of four and a half persons 22*l.* 10s.; while the workmen engaged in manufactures, gaining 12*l.* 5s. per annum, have for each family of four persons (there being fewer children in the towns than in the rural districts) a revenue of 49*l.* The classes employed in arts and trades occupy a middle position between the two others, their yearly income amounting to 33*l.* 8s. for each family of four persons. The annual average for the whole labouring population of France is 26*l.* 11s. for each family of four and a half persons.

In 1788, according to M. de Tolosan, director of commerce under Louis XVI., there were 17 millions of labouring population in France, including women and children, and they gained together 81,000,000*l.* of wages. Following the same proportion of four and a half persons to each family, though at that time the average was probably at least five, as the relative number of children born was one-third greater than at present, the average annual income of each family was 21*l.* 6s. The mean rate has therefore risen *5l.* 5s. per family, or about 25 per cent. in eighty years; but this augmentation certainly does not compensate the rise which has taken place in the same period in the price of food and rent; it may, therefore, be concluded that, allowing for the general advantages bestowed by growing civilisation, the material position of the working classes is no easier now than it was during the last century.

In comparing the respective incomes of the agricultural and manufacturing classes, it appears at first sight as if the latter, who gain 49*l.* per family, must necessarily live in greater comfort than the former, whose income is only 22*l.* 10s. But this is probably incorrect, for the evidence is rather the other way. The general health is better in the country than in the towns; the mean duration of life is 40 years in the rural districts against 33 in the towns, and the exonerations from military service for medical reasons are far less frequent among the country conscripts than in those drawn from the manufacturing centres. Furthermore, there are in France about 2½ millions of little properties bringing in on an average 4*l.* a year to their owners, and it is certain that the very great majority of these belong to agricultural labourers. It may, therefore, be admitted that about three-sevenths of the 5,350,000 families employed in the cultivation of the soil have a real income of 26*l.* 10s. per annum, which places them, for the life they lead, and for the wants they have to satisfy, in quite as good a position as the town workman, with his comparatively higher expenditure and frequent temptations. No peasantry in the world pursue the acquisition of a bit of land with such restless perseverance as the French; the satisfaction of this desire is the great object of their existence. This thirst after property is universal in France; it shows itself in every class, but in none to so marked a degree as among the agricultural population, who scrape up the means of satisfying it by years of willingly-borne privations.

It may generally be said that the French labouring classes, of all kinds, live in greater relative comfort than the English of similar position, but this difference is not caused solely by greater sobriety or economy, or by peculiarities of character or of the manner of living; it arises also in some degree from the comparative scantiness of the French population. In all France there is only 1 inhabitant on an average to 3.63 acres, while in England the proportion is 1 to 1.8 acre. The same surface in England supports, therefore, just twice as many individuals as in France; and although the average difference springs entirely from the accumulation of population in the English manufacturing towns, and the density of the rural population taken separately in the two countries would not probably show any balance against England; still the labouring classes in

France, taken as a whole, have so large a superiority of elbow room, that, added to their economical and quiet habits, it places them in a general position superior to that of the English working classes.

The population is naturally denser in certain districts than in others. In the fifteen departments which form the Channel and Atlantic coast, there is 1 inhabitant to 3.14 acres; in the twelve land frontier departments there is 1 to 3.19 acres; in the fifty-four interior departments there is 1 to 3.88 acres; while in the five Mediterranean departments the density falls to 1 inhabitant to 4.18 acres. The population of the districts on the northern and western coast is therefore about a fifth more numerous than the average of the whole country, and as this proportion is increasing, it presents an important feature in the general movement.

Divided according to their religious belief, the inhabitants of France showed the following numbers for each creed in the census of 1851:

Catholics	34,931,032
Calvinists	480,507
Lutherans	267,825
Jews	73,973
Other creeds	29,833
	35,783,170

The number of churches of all kinds in France in 1836 amounted to 41,132, for 33 millions of inhabitants, while before the revolution of 1789 there were about 70,000 churches, including those of the convents, for 24 millions of population. The quantity of church room is therefore now nearly two and a half times less than it was eighty years ago. But this fact alone, if it were not supported by the circumstances stated in the previous chapter, would not suffice to prove the growth of religious indifference in the interval, for the supply of churches during the last century was certainly too great for the spiritual wants of the people.

It results from these details of the movement of the population of France since the commencement of the present century, that it has a marked tendency to migrate to the towns and coast districts; that while the mortality of children is falling, that of grown men appears to be increasing; and that if the marriages continue to be unproductive, the progress of number can only be maintained by a constant rise in the average longevity. And at the best, it is probable that the persistent decrease in the proportionate number of births will finally paralyse the effects of the growing duration of life. There is no immediate sign that the population of France has yet reached its maximum of development; there is room enough to fill, and the quantity and value of agricultural and industrial production are rising so fast, that the means of existence for a larger population cannot be put in doubt; but if the people refuse to have children, and the births continue to fall at the average rate of the last seventy years, it cannot be expected that the progress of number will last beyond the end of the present century, and it is to be feared that the next generation may see the population of their country going backwards.

It is true that there has been marked improvement since 1856, but no one can yet decide whether that improvement will continue.

CHAPTER III.

EDUCATION.

Until 1850 the whole education of France was under the direct management of the government: a certain number of private secondary schools existed by permission, but they were under the control of the academical authorities, and their teaching was strictly confined to certain prescribed limits.

The principle of the intervention of the state in the instruction of the people is not a new one, it existed under the old monarchy, when the University of Paris directed education in the king's name. Under the first Empire, in 1806, the system was reconstituted on a similar but wider basis, extending to all classes of teaching, and in 1833 the administration of primary schools was remodelled by a detailed and comprehensive law, which placed them under the exclusive control of the state. But in 1850 the monopoly assumed by the government in educational matters was sensibly diminished in consequence of the permission granted by the law passed in that year to establish private schools of all classes under easy conditions. This is a first step towards the "liberty of teaching," which has been so warmly advocated, and as warmly attacked in France at each successive revolution; and the paternity of the liberal law of 1850 is an honour to the name of M. de Falloux, then minister of public instruction, who prepared it. But as the effect of this law has been to greatly increase the number of private schools directed by the clergy or by religious fraternities, and as recent events have stimulated the Ultramontane tendencies of the clerical party, and have rendered its members openly hostile to the government and to the principles of 1789, which form the basis of the liberal theory in France, the law is now most violently attacked by the democrats, who, notwithstanding the liberties conferred by it, see in the new position acquired under it by the clergy, and in the influences which result therefrom, a danger for the liberal principles of the children brought up in religious schools.

The law, as it now stands, recognises and permits two sorts of schools: those founded or supported by the state, the departments, or the communes, which take the name of public schools, and are entirely managed by the state; and those founded and supported by private persons, with the permission of the government, which are called free schools, and are subject only to surveillance on questions of health and morality, the details of teaching not being examined excepting to verify that they contain nothing contrary to public morality, the constitution, or the laws.

The education given in both these classes of schools is divided into primary, secondary, and superior.

The general superintendence of national education is in the hands of the Minister of Public Instruction, who is assisted by the Superior Council of Education. This council is composed of four archbishops or bishops, one Calvinist and one Lutheran minister, one delegate from the Jewish consistory, all chosen by their respective colleagues, and several superior government officials named by the state. Eighteen inspectors-general are attached to the council.

The direct administration and control of the public schools, excepting those of Paris, which are under the personal direction of the minister, are confided to sixteen academies, established in different parts of France. Each academy consists of a rector, who is the representative of the state, and communicates with the minister, and a council composed of the various local authorities, the bishop, and an ecclesiastic of each creed.

A certain number of inspectors, varying with the population, are attached to each academy.

The Academical Council examines the state of the public schools in its district, verifies their accounts, decides on the reforms required in teaching, discipline, and administration, votes money grants, judges complaints and disputes, and generally discusses the questions brought before it by the rector. The primary public schools, however, now form an exception to this universal jurisdiction of the local academies: as far as these schools are concerned, the action of the Academy is limited to questions of pure teaching, their entire political and administrative direction being exclusively confided to the prefect of the department, assisted by a special Departmental Council.

Every commune is bound to have a public primary school for boys, and every commune of eight hundred inhabitants is equally bound to have a separate primary public school for girls. Children of different sexes are not allowed to frequent the same school, unless, as often occurs, there is only one of any kind, public or private, in the place. In cases of very scanty population, two or three communes may join together to maintain one school between them. As much as possible separate schools are provided for children of different religions, and in cases where there is only one school means are taken to keep the children free from attempts at conversion.

The father is the sole judge of the faith in which he wishes his child to be educated.

Public primary instruction includes, obligatorily, moral and religious teaching, reading, writing, arithmetic, grammar, the elements of history, geography, physics, natural history, agriculture, and mechanics, singing, and gymnastics. In girls' schools needlework is added.

This public instruction is gratuitous for all children whose parents cannot pay for their schooling: in Paris, and in certain communes, no payment is received at all. The delicate question as to who can pay and who cannot is decided by the municipal council of each commune, which draws up an annual list of the two categories of children, proposes the rate of payment to be charged to those who do pay (which varies with circumstances), and sends the whole for confirmation to the prefect.

The teachers of the communal primary schools are named by the prefect on a list presented by the academy of the district or by the superior of the religious educational establishments. To be admitted as a primary teacher by the Academy the candidate must be of age, and must possess a certificate of capacity which is obtained by competition at a public examination, held annually for that purpose in each department. The teachers presented by the religious associations are not bound to produce any certificate (though they sometimes qualify for it), as their special preparation is supposed to be a sufficient guarantee for their capacity. They are, however, very rarely admitted in the public schools.

Under-teachers are admitted at eighteen years of age, and are dispensed from the production of a certificate.

The communal teachers receive a lodging, a salary of 8*l.* per annum, paid by the commune, and the amount of the school money received from such parents as are able to pay for their children, which, on the present general average for all France, amounts to 6s. 2d. per child per annum. They are not allowed to fill any administrative post without permission, and all commercial occupations are absolutely prohibited to them. The average amount of their earnings down to 1850 did not exceed 20*l.*, and their positions were so miserable that the law of that year granted a state subvention to make up to them a general minimum of 24*l.* The under-teachers receive a minimum of 20*l.* a year.

The male teachers supplied by the religious establishments are known by the general denomination of Christian Brothers; but they belong, in fact, to several distinct orders, though the Christian Brothers, properly so called, direct the great majority of the religious schools, notwithstanding the inconvenience of their rule, which forbids there being less than three together at each school.

Female teachers are nominated under similar conditions, but their examination for the certificate of capacity is not public. Nuns are admitted without any certificate.

The supply of lay primary teachers is maintained by their special education for the purpose, either in the communal schools themselves or in the normal schools, under the direction of the academies, which the law requires to be kept up in every department. Though rendered obligatory by the law of 1833, normal schools existed partially since 1810, when the first was established at Strasbourg. Of the 86 old departments there are still 17 which have not opened normal schools. These schools are supported by legacies and gifts, the interest of funded property already in their hands, the payments made by the scholars, and by subventions from the state, the departments, and the communes. The annual average expenses of each normal school is estimated at 1100*l.* Pupils are admitted to them by competition; they must be sixteen years old; those who pass the best examination are received free; and others pay an average of 14*l.* 12s. per annum. Female normal schools are not obligatory, but their number is increasing.

The supply of ecclesiastical teachers is maintained by similar normal schools, under the special direction of the superior of each fraternity. There are no figures published about them, but their number and importance are necessarily increasing in proportion to the extending field of educational action which the religious associations appear to be acquiring.

The number of communal primary schools, whether for boys only or for the two sexes together, has risen from 22,640 in 1833, to about 36,500 in 1857, and as there were at the latter date 36,000 communes in France, the average was about 1 school per commune. The number of private primary boys' schools in 1857 was estimated at 3500, making a general total of about 40,000, of which total 22,000 were exclusively for boys, and 18,000 for both sexes. The number of communal girls' schools, which was only 5455 in 1837, was nearly 14,000 in 1857, while the number of private primary girls' schools in the latter year amounted to 11,500, forming a total of about 25,500. The general total of primary schools in France in 1857 stood, therefore, at 65,500.

The great majority of the 36,500 communal boys' schools are taught by lay teachers; but of the 3500 private boys' schools about 3000 are in the hands of the Christian Brothers. Of the 25,500 girls' schools, 13,500 are taught by nuns, including a certain proportion of communal schools, for which it is often difficult to find

Note.—In the absence of recent official publications on the subject of Education, the figures quoted are taken from M. Block's "Statistique comparée de la France."

female lay teachers in sufficient number. This development of nuns' schools is admitted to be an advantage (putting aside political considerations), for though the Christian Brothers, notwithstanding their supposed fitness, which exempts them from the production of a certificate, are often accused of ignorance and incapacity, and though laymen are considered better teachers, it is generally recognised that nuns make very good schoolmistresses.

In 1831 the primary schools in all France were attended by 1,995,624 children, composed of 1,200,715 boys, and 734,909 girls. The number of children who go to school is now estimated at about 3,850,000, of whom 2,250,000 are boys, and 1,600,000 girls. On the total population of 36 millions, not including Savoy and Nice, this is equal to a proportion of 10½ per cent.

Of the 2,250,000 boys, 1,850,000 are in lay schools, and 400,000 in schools taught by ecclesiastics, which gives an average of 50 pupils for each lay school, and 133 for each religious school. For the 1,600,000 girls a much larger disproportion is observed; deducting 200,000, who go to the mixed schools, it is estimated that 900,000 attend the nuns' schools, and 500,000 the lay schools, which give 66 pupils for each nuns' school, and 42 for each lay school.

About 40 per cent. of the boys, and about

31 per cent. of the girls, pay nothing for their schooling.

It has just been shown that the number of children who attend school has nearly doubled since 1831. It is calculated that in that year 45 per cent. of the boys between the ages of 5 and 12 did not go to school at all, while in 1857 the proportion had fallen to 21 per cent. The girls are making even greater progress: in 1836, 60 per cent. of the female children between 7 and 13 did not go to school, while the proportion was only 25 per cent. in 1857.

These general averages, however, give an insufficient idea of the progress which certain localities have effected. In Alsace, 95 per cent. of the whole number of children go to school, while in certain departments of the centre and west the proportion is still only 50 per cent. of the boys, and 32 per cent. of the girls.

In confirmation of these figures, which result from calculations of the proportions which exist between the whole juvenile population and the number of children counted in the schools, the annual results of the conscription afford an excellent proof of the rapid development of primary education in France. From 1827 to 1859 the number of conscripts able to read and write has risen in very regular order from 42 to 64 per cent. The report published by the Minister of War on the conscription of 1859 announces that out of the 305,339 young men who drew in the class of that year, 194,743 (63.78 per cent.) could both read and write. The difference between certain departments are again observable here. In 1855, 95 per cent. of the conscripts of the Haut-Rhin could read and write, while only 44 per cent. of those of the Loire-Inferieure were in the same case. Again, the return of the marriages of 1854 show that 70 per cent. of the men married, and 56 per cent. of the women, were able to sign their names. It may, therefore, be admitted that, allowing for the proportion of old people, who are less instructed than the present generation, more than half of the whole present adult population of France are able to read and write, and it is evident that in a few years the average will reach two-thirds.

The idea of rendering primary education compulsory in France has often been put forward. During the great Revolution a law to that effect was adopted by the Convention, but it fell with the government which enacted it. In 1841, a law was passed obliging the children employed in factories to go to school; it still remains in force. In 1850, a proposal to make this obligation universal was brought before the National Assembly, but it was rejected by 425 votes against 182. In 1861, a new agitation was made on the subject, the Industrial Society of Mulhouse having presented a petition to the Senate to demand that primary instruction be rendered compulsory throughout France. But though several newspapers supported this petition, it was rejected by the Senate.

In addition to the ordinary primary schools, every commune of more than 6000 inhabitants is bound to have an upper primary school. The programme of education in this class of school is increased by the teaching of geometry and its applications, drawing, surveying, and physical sciences; in most of them book-keeping and the elements of commercial law, and in some even modern languages are added to the list.

The government does not absolutely indicate the books which shall be used in primary teaching, but it recommends a list for the purpose, and it specially reserves the right of prohibiting such works as it may for any reason consider objectionable.

The secondary or upper schools are, like the primary schools, divided into the two categories of public and free.

The public schools of this class form two distinct divisions—lyceums and communal colleges. The lyceums are founded and supported by the state, aided by the departments and the towns; the colleges are founded and supported by the communes, but they may be assisted by the state, and may be transformed into lyceums.

The programme of these schools includes moral and religious instruction, ancient and modern languages, philosophy, history, geography, and the mathematical and physical sciences. Their direct object, beyond the mere education of the children of the upper and middle classes, is to prepare them for the examination for the degree of bachelor of law or letters (of which the diploma is essential for a great many positions in France), or for the examinations for admission to the special scientific schools.

The lyceums are organised on a very complete footing; throughout France (excepting Paris) they are all alike in discipline and teaching.

The communal colleges are of two sorts: those in which the system is exactly similar to that of the lyceums, and those in which the studies are less complete, and do not directly prepare for degrees.

The teachers of both these classes of schools are appointed exclusively by the academies; they are recruited generally from the departmental normal schools, by what is called aggrégation. The aggrégés are chosen by competition; they do not necessarily at once receive an appointment as teacher, but no one can become a teacher in a public secondary school unless he is aggrégé; if he has to wait for an appointment he receives 20*l.* a year meanwhile. The superior normal school in Paris is the highest establishment for the preparation of teachers and professors: the pupils there are about 80 in number; they are named by the minister after examination, and are instructed gratuitously.

In 1763 there were in France 562 secondary schools of all kinds, with 72,747 pupils, representing 2.91 per cent. of the whole population. In 1842 there were 1374 secondary schools of all kinds, which had only 69,341 pupils, representing 2.04 per cent. of the population. In 1854 there were 1395 schools, with 108,333 pupils, representing 3 per cent. of the population. The circumstance that an almost equal proportion of the population frequented the secondary schools a hundred years ago, to that which is found there at present, would seem, at first sight, to indicate that no progress had been made in the interval; but it is explainable by the double fact that there were at that time no separate seminaries for the education of the clergy, while the special students for holy orders now amount to 20,000, and that classical instruction was formerly given gratuitously to an immense extent, nearly one-half of the total number of secondary pupils just given for the last century having paid nothing for their teaching. Allowing for these two special causes of increase in the number of secondary pupils before the Revolution, it is evident that the relative number of scholars is now at least double what it was then.

In 1854 the secondary schools were composed as follows:

61 lyceums with	21,076 pupils		48,981
253 communal colleges	27,905 „		
825 lay private schools,	42,462 „	63,657; but as 4305 of these pupils attended the studies of the public schools, and are already included in the number of the latter, the real number of private school pupils is reduced to	59,352
256 ecclesiastical ditto	21,195 „		
Total			108,333

The effects of the permission, granted by the law of 1850, to open private schools on easy conditions, have not been so much to increase the total number of secondary pupils, which only rose from 99,623 in 1850 to 108,333 in 1854, as to divert the direction of the education of the middle classes from the hands of the state to those of private individuals. In 1850 there were 462 lyceums and communal colleges, and 914 private schools, while in 1854, after only three years' operation of the new law, the lyceums and colleges had diminished to 314, while the private schools had risen to 1081. The number of pupils in the lyceums rose from 19,269 in 1850, to 22,936 in 1856; but the pupils of the communal colleges diminished in the same time from 31,706 to 28,219, so that the two together increased by only 180 pupils in these six years; while the pupils in the private schools increased from 48,654 in 1850, to 59,352 in 1854, or 10,698 in four years. The rapidity with which this result was obtained may be taken to indicate a strong predisposition for private schooling among the middle classes.

Private schools for secondary education can be established by permission, or more exactly by absence of objection, after three months' notice to the authorities. They are divided into two classes, institutions and pensions. The masters of institutions must be bachelors of letters and sciences, the masters of pensions must be bachelors of letters; the former pay the state a tax of 6*l.* a year in Paris, and 4*l.* in the country: and the latter pay 3*l.* in Paris, and 2*l.* in the country. In both these classes of schools the teaching used to be limited to a certain maximum, which was higher for institutions than for pensions; if there was a college in the place the pupils were, until 1850, bound to follow its courses, for which the private schoolmaster was only allowed to prepare them. Many private schools still continue to send their pupils to the college courses instead of keeping special masters for them.

The mistresses of private schools for girls must be twenty-five years old, and must possess a diploma, excepting always those who belong to religious orders. The only public secondary girls' school in France is the famous imperial foundation of St. Denis, where 800 girls, daughters of poor members of the Legion of Honour, receive gratuitously a most brilliant education, which is shared by 100 others, who pay their terms, but who must also be relatives of members of the order.

Of the 1081 private boys' schools which existed in 1854, 825 were directed by laymen, and 256 by ecclesiastics. But the junior religious seminaries (petits séminaires), which are under the control of the bishops, are not included in the latter total, though they also educate boys for the ordinary avocations of life. As there were 123 of these seminaries at the date in question, the total number of secondary schools in the hands of the clergy amounted to 379: 7 of these belonged to dissenting creeds.

The development of private secondary schools which has taken place since 1850 has occurred almost entirely among the religious schools, and, as in the primary schools, the number of pupils who attend them is proportionately higher than in the lay schools; the average of pupils in the former being 83 against 51 in the latter.

The charge for private schooling varies in the provinces from 12*l.* to 38*l.* a year in the boarding-schools, and from 10s. to 16*l.* a year in the day schools. In Paris the prices are higher, rising to 48*l.* in the boarding-schools. There is no difference of price worth noticing between lay and religious schools.

The upper ecclesiastical seminaries (grands séminaires) are bound to admit no pupils but such as are destined to receive orders: they cannot be established without the consent of the government, but they are managed by the bishops alone. The total number of clerical students in France is limited by law to 20,000, which is considered to be a sufficient number to ensure the due recruiting of the clergy.

Superior education, as it is called, includes the five faculties of theology, law, medicine, sciences, and letters, with the special preparatory schools attached to them. The faculties are not confined to Paris; several of the large towns possess them. Their functions are to teach the higher branches of study by means of public lectures, and to examine candidates and grant diplomas for the various university degrees. A large number of the young men of the middle and upper classes pass the examination of bachelors of law or letters. Liberal education is hardly considered to be complete without one of these diplomas; indeed, its possession is an absolute condition for a great number of positions.

France is rich in special schools, where scientific education, in each branch, is carried to great perfection. The principal establishments of this class, none of which are under academical control, are the College of France; the Museum of Natural History, at the Jardin des Plantes; the School of Fine Arts, for the gratuitous teaching of painting, sculpture, and architecture, the best pupil of each of which divisions is sent annually to Rome to study for five years at the cost of the state; the schools of Rome and Athens, the latter being for archæological studies; the Ecole des Chartes, where students are taught to decipher old manuscripts, ancient documents, and historical monuments; the school of Oriental languages; the Conservatoire de Musique, for the teaching of vocal and instrumental music and dramatic elocution; the school of Government Engineers (Ponts et Chaussées); the Mining School; the numerous schools of art and manufactures; the Central School of Arts and Trades; the Commercial Schools; the Drawing Schools; the Forest School, for the education of the state forest-keepers; and the Agricultural and Veterinary Schools. There are many others of less importance.

Paris is admirably supplied with public libraries, and in the provinces there were, in 1854, 338 similar institutions, containing about 4,000,000 volumes. The average daily number of readers is 3648, or about 11 per day for each library.

Books are under severe control in France. No one can become a printer or bookseller without permission, to obtain which it is necessary to prove the capacity, honesty, and political loyalty of the candidate. No printer can print any document whatever without first communicating it to the government, nor sell or publish it till he has deposited two copies with the authorities. These formalities are executed in Paris at the Ministry of the Interior, and in the departments at the Prefecture.

There are in France 1032 letter-press printers
„ „ 1588 lithographers
„ „ 4388 booksellers

The number of separate works of every kind published annually in France is rapidly increasing; it has risen from 7350 in 1851, to 13,331 in 1858.

The trade of hawking books for sale in the provinces (colportage) is most carefully watched by the state; it cannot be exercised without license; its importance is considerable, for the number of volumes sold in this way amounts to 1,400,000 a year.

Three general facts result from this description of the present state of education in France. Schools of all kinds are abundant and cheap; the average of national instruction is rising; and there is a perceptible and apparently growing tendency on the part of the people to transfer the education of their children to the hands of the clergy.

The fact of the abundance of schools speaks for itself; the mere existence of 65,000 primary and 1400 secondary schools for a population of

36,000,000, is proof enough that the means of instruction are not wanting; and as the annual cost of schooling varies from 6s. 2d. in the primary schools to 48*l.* in the dearest Paris boarding-schools, it is certainly moderate enough.

The progress of knowledge, though evident, is difficult to exactly appreciate, because the simple extension of the power of reading and writing, though necessarily the first step towards the acquirement of knowledge, does not imply that it is really attained. It is possible that its diffusion among the labouring classes in France is still very limited; for though the proportion of young men able to read and write has risen in thirty years from 42 to 64 per cent., and though, consequently, their capacity of reading has augmented at the same rate, the jealous action of the laws on printing and publishing deprives the lower classes almost entirely of the power of possessing books, though their desire to acquire them is proved by the sale of 1,400,000 volumes a year by the country hawkers. Modifications of the present system of direction of the bookselling trade are constantly suggested to the government, on the very ground that, until the poorer classes can get books as they want them, their instruction will remain limited to what they have learned in the village school and forgotten afterwards. Of the 4388 French booksellers, 1034 are in Paris alone, and 3354 in the provinces; so that even including all the great towns for only one bookseller each, there are about 32,700 communes out of 36,000 without any bookshop at all. The public libraries are practically inaccessible to the agricultural and manufacturing classes; they can only read at home, and if they cannot get books their intellectual progress is almost impossible. Whether the discussion which is rising on the subject will produce an effect, time will show; but as the intention of raising the standard of intelligence among the working classes is in the programme of the imperial government, it is possible that, encouraged by the rapid progress of rudimentary education, the state may decide to liberate the book trade from the difficult conditions which at present limit its action, and so render possible the sale of books, and the consequent diffusion of knowledge, in the proper sense of the term, in all the villages of the country.

The progress of secondary education forms a totally separate subject. The figures quoted imply that it has largely extended since the last century, but it is difficult to form any but an individual appreciation of its results. It is not the want of books which affects the development of knowledge amongst the middle and upper classes, for they, of course, can buy as many as they please. Their course of instruction is generally the same as in England, excepting that it is less classical and more directed to what is understood by useful knowledge; but the consequences differ materially in the two countries.

The English, as a rule, from their habits of reading, learn far more after they leave school than before that date; but the great majority of the French, excepting, of course, those who pursue scientific careers, may be said to give up all study directly they are out of their college. And yet they impress foreigners with the idea that they possess an extensive and varied store of knowledge, for they talk on all sorts of subjects with fluency and ease. Living as they do, for the most part, in constant social communication with each other, they acquire by daily habit and practice remarkable dexterity in the manipulation of their language. The facility of conversation thus obtained is supported and brought into light by the faculty of imitation and of absorption and assimilation of the ideas of others, which the whole nation possesses in so marked a degree; so that their fluent wording, united either to their real knowledge or to the appearances of it, which they pick up from their perpetual contact with each other, produces a result so striking and attractive, that an Englishman admitted for the first time into a French drawing-room is surprised at the animation and intelligence of a conversation which never flags, and in which all the talkers, men and women, seem thoroughly up to every subject which arises.

But these amusing and well-sustained discussions, and the varied information which they often reveal, do not really imply a solid or brilliant education any more than the melancholy tea-parties of England, where the conversation drops every five minutes, and where nobody seems to have a word to say, prove that the English middle classes are all ignorant. The English, with their heads full of facts, cannot get them out of their mouths, while the French, who generally do not take the trouble to learn, seem to know something about everything, simply because they are the best talkers in the world. However satisfactory it may be to the Englishman to acquire knowledge, which he keeps to himself for his personal pleasure or advantage, he certainly does not add as much to the common fund of life as the generally less well-read Frenchman, who gaily contributes all he knows himself, and all he so dexterously picks up from others, to the amusement of the society in which he lives.

The explanation of this radical intellectual distinction between the two nations can hardly be found in the differences between their respective courses of education, which, in fact, hardly differ at all; it is rather a question of national character and habits; but as the teaching received at school cannot fail to have some influence on the tendencies and capacity of the man, it may be supposed that one of the effects of French secondary education is to prepare the child for the conversational necessities which await him on his entry into life.

Facility of talking is common to the two sexes, but the education of the women of the middle and upper classes in France presents one special characteristic: it is particularly advanced in all that relates to the duties of every-day life, the details of housekeeping, and economical management. French girls of every class, up to the very highest, and with very few exceptions, are able to cook well, do all sorts of needlework, including dressmaking, and keep accounts. They have no false pride about it, and they regard such knowledge as the simplest matter of course, though naturally they do not always exercise it. Such conditions of domestic education are, perhaps, not necessary in England, where the greater development of wealth amongst the upper classes allows the employment of a large number of servants; but they are none the less admirable in France.

It may generally be said that the secondary education of the French offers a very fair average as compared with that of other nations; that they know less of geography and history and more of sciences and physics than the

English of corresponding classes; that they read less and talk better than any other people; and that the natural tendency of their intelligence is not only to shine in society, but to be practical at home.

The third educational result indicated by the figures just given is the movement from the lay schools towards those directed by the clergy. This new feature reveals itself in schools of every class, but its appearance is still too recent, and its effects, though proportionately large, are still too limited on the whole, to allow of the formation of any present estimate of its probable consequences. It cannot be shown whether the augmentation of religious schools since 1850 results from a pre-existing want of confidence in the public schools, or from the active influence of the clergy since that date; the latter is, however, the more probable explanation. But the movement presents a character of serious importance, not only in a religious but also in a political point of view, for if it should continue to extend it may possibly produce important effects on the convictions and actions of the next generation. It has already been stated that the democratic party is violently attacking the principle of clerical education, and it cannot yet be said that the present law of liberty of teaching is beyond the reach of repeal, especially as the emperor has declared himself hostile to it. He says, in his published works, that "it is the duty of a government at the head of a nation which has just freed itself from the ideas of the past, not only to direct the present generation, but also to bring up the rising generation in the principles which have produced the triumph of this revolution;" and, again: "Unfortunately, the ministers of religion in France are generally opposed to democratic interests; to allow them to establish schools without control is to permit them to educate the people in hatred of the revolution and liberty." Under these circumstances, it is prudent to express no opinion as to what is likely to come of this great question.

CHAPTER IV.

CRIME.

The statistics of crime in France date from 1825, when they were created by M. Guerry de Champneuf, then director of criminal affairs at the Ministry of Justice. Up to that period there were only incomplete returns of little utility.

There are three classes of tribunals in France for the judgment of offences: assize courts, tribunals of correctional police, and tribunals of simple police. The cases brought before the two former tribunals are first submitted to the investigation of the public prosecutors and juges d'instruction, whose duty it is to decide whether they present sufficient importance and probability of culpability to require them to be sent for trial, and who, in that case, get up the evidence against the prisoners. Bail being virtually unknown in France, persons arrested on suspicion are detained in prison until the charge against them is decided; and as the "instruction" or preliminary examination of each case is gone into in great detail, and lasts sometimes a long time, the preventive imprisonment is necessarily equally long.

The returns since 1826 establish, that while the number of prisoners brought before the assize courts for grave offences has materially diminished of late years, those tried by the tribunals of correctional and simple police have largely increased. The number of prisoners judged by the assize courts averaged 7400 per annum on the quarter of a century included between 1826 and 1850; but from 1851 to 1855 the average fell to 7104, while in 1856 there were only 6124 prisoners for trial, in 1857 only 5773, and in 1858 only 5375.*

This diminution, if confirmed by the returns since 1858 (which is the latest date to which they are at this moment published), constitutes a very satisfactory feature in the present state of France, and it is the more striking when the simultaneous augmentation of population is brought into account. The 7400 culprits of 1826 represented .023 per cent. on the then population of 32 millions, while the 5375 prisoners of 1858 show only .015 per cent. on the 36 millions of people who then inhabited France. The diminution of the crimes brought before the assize courts, calculated per cent. on the population, amounts, therefore, to the large proportion of one-third during the period in question.

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* All the French figures given in this chapter are taken from the successive publications, since 1826, of the Statistique Officielle de la Justice Criminelle en France.

And while this remarkable diminution has occurred in the whole number of serious crimes committed, their nature and composition have undergone an equally remarkable change. Since 1826 the general proportion of crimes against persons has regularly increased, while that of crimes against property has simultaneously decreased. The following table of the number of prisoners tried per annum shows the exact variation which has occurred in the two categories of crime:

	Crimes against persons.	Proportion of the whole.	Crimes against property.	Proportion of the whole.	Total.
1826 to 1830	1824	25.6	5306	74.4	7130
1831 to 1835	2371	31.8	5095	68.2	7466
1836 to 1840	2153	27.3	5732	72.7	7885
1841 to 1845	2186	30.8	4918	69.2	7104
1846 to 1850	2438	32.8	4992	67.2	7430
1851 to 1855	2353	33.1	4751	66.9	7104
1856	2108	34.4	4016	65.6	6124
1857	1966	34.1	3807	65.9	5773
1858	2280	42.4	3095	57.6	5375

In round numbers the proportion of crimes against persons has increased by two-thirds (25.6 to 42.4) in 34 years, whilst crimes against property have diminished by about two-ninths (74.4 to 57.6). It is, however, difficult to attribute this movement to any definite cause, because the augmentation of crimes against persons does not apply equally to all the various offences included under that general head, and because certain classes of crime increase during one period to diminish again during another. For instance, from 1826 to 1850, wilful murders increased 22 per cent., and infanticides 49 per cent.; parricides doubled, and rape of girls under sixteen tripled; the increase of the latter crime being especially observable in the towns and manufacturing districts. But since 1851 all these crimes, excepting infanticide and violation of children, have fallen again, the variation from 1851 to 1858 having been as shown in the following table of the number of cases tried, which is, of course, lower than that of the prisoners implicated:

	Number of cases tried.					
	1851.	1854.	1855.	1856.	1857.	1858.
Murder	280	215	210	202	184	196
Manslaughter	196	87	94	95	99	114
Poisoning	38	36	40	30	36	33
Parricide	20	14	13	13	12	17
Infanticide	164	198	173	190	208	224
Accidental homicide	130	75	74	76	61	82
Assaults, wounds, &c.	267	142	117	116	104	122
Rebellion	51	23	18	23	15	14
Rape, &c., of grown women	242	174	160	181	188	238
Rape of young children	615	581	582	650	617	784
Perjury, &c.	82	68	61	45	51	65
Coining	72	72	50	58	52	34
Forgery	462	532	559	499	471	402
Serious robberies (vols qualifiés)	2233	2768	2187	1886	1822	1542
Incendiarisms	218	286	216	206	239	223
Fraudulent bankruptcy	62	103	121	117	105	114
Sundry crimes	155	151	132	148	135	98
Total of cases	5287	5525	4798	4535	4399	4302

While, however, as is shown by this table, certain classes of offences have diminished since 1851, others have simultaneously increased; while murders, manslaughter, poisonings, and parricides, all of which had augmented from 1826 to 1850, fell from a general total of 534 in 1851 to 360 in 1858, and while accidental homicides, assaults, and especially robberies, all diminished, infanticide, incendiarism, fraudulent bankruptcy, and rape of girls, sensibly increased. Incendiarisms by the proprietors themselves, in the hope of gaining their insurance, rose from 14 per cent. of the whole number of incendiarisms in 1826 to 34 per cent. in 1850, while rape of children got up from 83 cases in 1826 to the above shown total of 784 in 1858. With the exception of the year 1854, serious robberies have regularly diminished, and it should be explained that their sudden augmentation in that year was caused by the famine and distress which then prevailed in France. This is proved by the remarkable circumstance that robberies of corn and flour, which were only 161 in 1851, rose to 502 in 1854.

The geographical distribution of crime in France shows on an average about twice as many criminals (proportionately to the population) in the north as in the south. On the average of the twenty-five years between 1826 and 1850, the department of the Seine had 1 assize court prisoner per annum for every 1385 inhabitants; Corsica, which comes next in the scale of criminality, had 1 to 1672; while in the Ain there was only 1 to 10,523: the average for all France being 1 to 4568. In 1857, after the general reduction of crime already indicated, there was 1 prisoner to 3225 inhabitants in the Seine, 1 to 2894 in Corsica, and only 1 to 15,493 in the Creuse: the average for the whole country being 1 to 6242.

And while the assize cases are relatively so much more numerous in certain parts of France than in others, there is an equal local diversity in the composition of the crimes judged. Attacks against persons are always most numerous in the southern departments, which are mainly agricultural, while the cases presented by the northern districts, where manufactures are comparatively general, offer a great majority of robberies and other offences against property. The most striking example of this distinction occurs, strangely enough, in the very two departments which present the largest proportion of crime—Corsica and the Seine. On the average, from 1826 to 1850, 83 per cent. of the crimes committed in Paris (Seine) were robberies, forgeries, &c., while in Corsica, where the hot blood of the south and the effects of the vendetta bring out the knife, assassinations and attacks against persons constituted 87 per cent. of the cases tried; so that these two departments, the most criminal in France, present the exact inverse of each other in the composition of their offences.

Divided according to their occupations, the prisoners tried at assizes from 1826 to 1850 give the following averages:

	Proportion to the whole.	Proportion against persons.	Proportion against property.
Agricultural labourers	32.2	40.8	59.2
Farm servants	4.6	31.8	58.2
Workmen in wood, stone, and iron	22.9	29.5	70.5
Millers, bakers, and butchers	3.4	28.9	71.8
Tailors, bootmakers, &c.	6.1	31.8	68.2
Carters, canal-men, and commissionaires	4.3	28.3	71.7
Merchants, tradesmen, and their clerks	6.8	17.0	83.0
Inn and café keepers	2.0	32.1	67.9
Domestic servants	7.2	14.5	85.5
Liberal professions, and government servants	5.8	41.6	58.4
Beggars and vagabonds	4.7	22.4	77.6
	100		

The results indicated by this table are curious and instructive. The agricultural classes, which constitute 66 per cent. of the total population, produce only 37 per cent. of the whole number of criminals, while the manufacturing population, which amounts to only 17 per cent. of the whole, furnishes 32.4 per cent. of the offenders: these two facts strikingly confirm and explain the disproportion previously alluded to in the number of criminals found in the northern and southern departments. Domestic servants, whose total does not reach 3 per cent. of the people, supply 7.2 per cent. of the prisoners; while, worse than all, the liberal professions and public servants, whose total number, including their families, cannot be estimated at more than 700,000 at the very outside, or about 2 per cent. on the whole population, produce 5.8 per cent. of the criminals. It is therefore precisely the educated classes who present the worst results, the scale descending from them through domestic servants and manufacturing workmen to its minimum among the agricultural population.

While this disproportion reveals itself on the whole, there is also a marked inequality between the various classes named in the composition of the crimes committed by each. Of the offences attributed to the liberal professions and public servants, 41.6 per cent. are against persons; but of the offences of domestic servants, 85.5 per cent. are against property, and only 14.5 per cent. against persons. These two classes present the extreme limit in each direction, and the divergence between these results indicates the differing nature of the temptations to crime which specially beset the two classes in question.

Crimes against persons are proportionately most frequent in the spring and summer, while those against property rise in number under the pressure of the cold of autumn and winter. The exact comparison is as follows:

	Against persons.	Against property.
January to March	22.9	26.5
April to June	27.9	23.3
July to September	26.7	23.2
October to December	22.5	27.0
	100	100

The proportion of female criminals is diminishing: they averaged 20 per cent. of the whole number from 1826 to 1830, and only 16 per cent. from 1841 to 1850, rising again to 17 per cent. in 1858. In Corsica there are only 4 per cent. of women among the culprits, while in the Côtes du Nord the proportion gets up to 27 per cent. There are generally more female prisoners in the north than in the south, because the former is the principal field for offences against property, which are precisely those which women commit most easily. Of the crimes against persons committed by women, the most numerous, after infanticide and voluntary miscarriage, are poisoning, for which women amount to 48 per cent. of the accused, and parricide, for which they show 30 per cent. It is especially observable that the great mass of female crime is committed in-doors; indeed, of the total of domestic robberies, women commit the large proportion of 37 per cent. It is remarked, as might be expected, that the abandonment of virtue frequently precedes the perpetration of crime by women; one-fifth of the female prisoners, on an average, either have natural children, or live in concubinage.

Age exercises a marked effect in the nature of the offences committed. Up to sixteen years old the tendency is three times greater in favour of offences against property than against persons: the same disposition continues to exist in a decreasing degree down to forty, when crimes against persons take the lead, their majority increasing with age up to the proportion of 1½ to 1 per prisoner above sixty years of age.

The motives of crime are sometimes difficult to ascertain, but as regards murders they are given exactly in the statistics of 1850, which assign the following proportions for each of the motives named:

Hatred and revenge	30.0
Cupidity	16.6
Domestic dissensions	12.0
Love and jealousy	11.9
Gaming and drinking quarrels	10.0
Other causes	19.5
	100

Murders from motives of cupidity have constantly increased during the last twenty years.

The motives of robberies are, of course, always the same, but it is singular that people can be found to risk the galleys for such small sums as appear to be stolen. On the average from 1826 to 1850, the annual value of all the robberies brought before the assize courts was only 51,000*l.*, which gives a mean of 12*l.* 7s. per robbery; and as all the large robberies are included in this total, it is evident that the amounts ordinarily stolen are far under that average.

It has been stated, that while the serious crimes brought before the assize courts have diminished of late years, the less important offences judged by the tribunals of correctional police have simultaneously increased. The number of prisoners of this class has augmented from 178,021 in 1826, to 211,081 in 1858, which constitutes an increase of about one-fifth, but the population has gone up one-eighth in the same time.

The composition of the correctional police cases, on the average from 1826 to 1850, was as follows:

Assaults and attacks on persons	10.8
Offences against morality	0.6
Ditto against public order	9.9
Trifling robberies and larcenies	14.4
Offences against special laws	7.0
Breaches of the forest and game laws, and other similar offences classed together under the title of "contraventions fiscales"	57.3
	100

While, however, these averages show the general proportion in which the correctional police cases stand to each other, they do not indicate the movement of the various classes of offences. Almost all have increased in number, but mendicity was nine times as frequent from 1846 to

1850 as from 1826 to 1830, its annual average having risen in the interval from 966 cases to 8317; robberies more than doubled, and breaches of the game and weapon laws rose from 5961 to 22,330, while offences against the forest laws somewhat diminished. Since 1853, however, mendicity has fallen again from about 8000 annual cases to 4068 in 1858; breaches of the forest and octroi laws diminished also; but offences against morality, larcenies, frauds of all kinds, breaches of the laws on keeping arms, and use of old postage stamps, have increased in various proportions.

The most striking feature in the composition of the correctional police cases is the very large proportion (57 per cent.) of what are called fiscal offences; indeed, it is difficult to understand, for those who are not acquainted with the minute and annoying rules of the French code on all matters connected with forests, rivers, roads, sporting, and possession of arms, how such an amount of trifling offences can be committed at all. But though the French law includes an immense variety of acts in the category of correctional offences, a large part of them cannot be considered to indicate any criminal intention; smuggling a bottle of wine through an octroi gate, or killing sparrows with a pistol without leave, though pursued correctionally, cannot be seriously regarded as indicating criminal perversity, and it is probable that a considerable part of the correctional cases do not present a much more serious character.

The third category of French tribunals, those of simple police, have also a constantly increasing number of cases submitted to them for judgment. From 97,568 in 1826, they rose to 197,343 in 1850, and to 411,649 in 1858, involving in the latter year 548,491 persons. This increase, however, is rather a good sign than a bad one, for as the classes of offences judged in simple police are generally limited to matters of order and health, their augmentation is only a proof of the growing watchfulness of the magistrates in all that concerns public security. The simple police cases average as follows:

Breaches of rural regulations	29.3
„ of the regulations for health and cleanliness	10.6
„ of the regulations on public security and quiet	44.9
Sundries	15.2
	100

One-seventh of the simple police cases occur in Paris alone.

Suicides form a subject apart in the general question of crime. They are rapidly increasing in France. Their progress has been as follows:

1826 to 1830	1739
1831 to 1835	2263
1836 to 1840	2574
1841 to 1845	2951
1846 to 1850	3446
1851 to 1855	3659
1857	3967
1858	3903

They have, therefore, more than doubled in the last thirty-two years.

The seasons exercise a perceptible influence in the number of suicides:

From January to March the proportion is	22.1
„ April to June „ „	30.7
„ July to September „	27.2
„ October to December „	20.0
	100

The largest number occur, therefore, during the summer months, the period at which crimes against persons also attain their maximum.

The proportion of women is 24 per cent. on an average of 25 years.

The means of suicide employed by each sex are as follows, calculated on the year 1850:

	Men.	Women.	Total.	Rate per cent.
Drowning	681	379	1060	29
Hanging and strangling	1075	241	1316	37
Suffocation by charcoal	161	142	303	8½
Fire-arms	533	8	541	14½
Knives, razors, and swords	121	25	146	4
Poison	35	30	65	2
Leaping off heights	89	44	133	4
Other means	28	4	32	1
	2723	873	3596	100

This table, being based on a single year, happens to include an unusually large proportion of women; but for that very reason it shows more clearly what are the forms of voluntary death which women prefer and avoid. They may be said not to use fire-arms at all, while, as regards suffocation by charcoal, their number is nearly equal to that of the men who employ that means of self-destruction. Charcoal is the most frequent form of suicide in Paris; 214 of the 303 cases shown above for 1850 occurred in Paris alone.

Accidental deaths, though they do not form any part of the crime of a country, still present a character of violence which justifies their being mentioned here. Their number is rapidly rising in France; it got up from 4781, in 1826, to 10,045, in 1857, falling again, however, to 8427 in 1858; 19 per cent. of the victims are women. Drowning is the most frequent cause of accidental deaths, two-fifths of the whole number resulting from that cause. It is worthy of notice, as a source of comfort for the timid people who are still afraid of railway travelling, that the average number of people annually killed in France by ordinary carriage accidents is about eighteen times greater than of those killed on railways.

It would be excessively interesting and useful to base on the foregoing details an exact comparison between the movement of crime in France and in England, so as to fix the relative criminal tendencies of the two nations; but, though in both countries the statistics of justice are now kept with great exactness and detail, the differences of classification are so great that it would be extremely difficult, if not impossible, to arrive at a correct result.

The number of prisoners brought before the various English courts, after increasing from 1826 to 1840, remained stationary from 1846 to 1855, and then diminished.

In 1860 the number of prisoners brought up for indictable offences was . .	24,862	
and for ordinary offences . . .	384,918	
Total	409,780	
or 2.04 pe rcent. on the whole population of 20 millions.		
In France, in 1858, the assize courts judged . .	5,375	prisoners
the correctional police courts	211,081	„
and the simple police courts .	548,491	„
Total	764,947	
or 2.12 per cent. on the whole population of 36 millions.*		

Now, if these figures really represented the amount of offenders in the two countries, there would be an advantage in favour of England; but the two totals are composed of elements varying so much in their composition, that the apparent result is altogether inexact.

It has already been observed that the correctional police cases include a large number of offences which imply no criminality, and that the simple police list is almost exclusively composed of infringements of detailed police regulations referring to matters of every-day life. But, in addition to this general fact, allowances must also be made for cases which exist as offences only in one of the two countries. For instance, the 211,081 persons brought before the correctional tribunals in 1858 included the following number of cases which have no existence at all in England:

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* All the English figures given here are taken from the judicial statistics for 1860.

Breaking limits by persons to whom a fixed residence was assigned by law	3,445
Breaches of the forest laws	47,830
	51,275

These 51,275 prisoners must first be deducted from the French total to allow of a comparison with England.

Furthermore, it may be said arbitrarily that at least one-half of the simple police cases have no analogy whatever with any English offences, so that if their total be reduced to that extent, for the purpose of comparison, there would be 274,000 to deduct from it, which, added to the 51,000 culprits already indicated as being in excess on the correctional list, gives 325,000 altogether to take off the French general total of 765,000, so reducing it to 440,000.

On the other hand, the English total of 409,000 includes 88,361 charges of drunkenness, which does not give rise to arrest in France (where, indeed, it is rare), excepting when accompanied by the commission of a legal offence, so that after deducting that number as having no equivalent in France, there remain 321,000 for comparison.

Now, on the population of France, 440,000 culprits give only a proportion of 1.22 per cent., while the 321,000 English prisoners represent 1.60 per cent. of the whole nation, the relative advantage in favour of France being about one-fifth.

But as this calculation is mainly based on an arbitrary deduction of one-half from the French simple police list, it does not really prove anything, though it is probable that, if the nature of the simple police cases could be exactly ascertained, and their number set off against the small proportion of similar charges which constitute offences in England, the deduction from the French list might be larger still, and the comparison in consequence become still more unfavourable to England. This supposition is strengthened by a comparison which it is possible to make very exactly between the numbers of certain absolute crimes committed in England in 1860, and in France in 1858, which were as follows:

	England.	France.
Murders of all kinds, and attempts to murder	791	584
Bigamy	109	—
Rape and assaults with intent . .	476	1,022
Forgery and coining	1,684	436
Robberies of all kinds, and larcenies .	78,179	39,243
Vagabonds and beggars . . .	23,748	6,103

Every figure in this list, with the exception of rape, is in favour of France, especially when the large excess of population in the latter country is taken into account; it may therefore be admitted, that if a similar comparison of every class of offences committed in the two countries were possible, an immense mass of the trifling cases tried in correctional and simple police would disappear from the French list, either on the ground that they have no existence in England, or that the English corresponding number is higher than the French; an hypothesis which may fairly be based on the fact just proved, that in many serious crimes the English show such a marked excess.

On one point, however, England attains, contrarily to the generally received opinion on the matter on the Continent, a decided superiority over France. Suicides are absolutely three times more numerous in France than in England, or, in proportion to the respective populations, nearly twice as high. In 1860 there were only 1357 suicides in England, against 3903 in France in 1858.

It would not be safe to form a definite opinion of the relative moral state of the two countries from an examination of their criminal records alone; there are other features to examine also; but still the movement of crime furnishes a most important element of the question, and a provisional idea may be based upon it. Without, therefore, assigning an undue importance to the foregoing figures, they may still be admitted to show that, as far as they go, the state of France, as concerns outward morality, seems to be decidedly superior to that of England. The comparison between the two countries for such crimes as can really be brought to scale is largely in favour of France; proportionately on the respective populations, rape and violation of children are twice as numerous in the latter country as in England; but murders, forgeries, and robberies are from two to three times as frequent in England as in France.

The greater density and misery of the English population, and its accumulation in manufacturing cities, may be supposed to partially explain these great differences, for it is not pleasant to admit that they are attributable to a greater degree of wilful criminality amongst the English. The cause, however, is not in question here, the result alone is before us, and it is very bad for England.

The comparatively high moral condition of the agricultural classes in France comes out strikingly, confirming what has already been said of their relative morality in the preceding article on Population. There is real importance in this circumstance, for the rural inhabitants constitute two-thirds of the whole nation; but it is somewhat counterbalanced by the excessive proportionate criminality found amongst the educated classes.

The constantly growing tendency to attacks against persons, the augmentation of rape, and the diminution of robberies, would almost seem to imply that violence of character is increasing, while want and dishonesty are diminishing; but this would be too general a conclusion to rest on such slight evidence. The criminality of France, while diminishing in its more serious elements, is simultaneously changing its objects, and, as in all other matters which are in a state of transition, time and experience alone will show the effect of the movement it is making.

CHAPTER V.

FOOD.

Of the numerous errors which exist in England on the subject of French life, there is not one more complete than the general impression that the French live on "kickshaws." There is great variety in the composition of the food of the upper classes in France, especially when compared with English nourishment, but variety does not exclude solidity, and the statistics of consumption given hereafter prove that the people of France are as well fed as the inhabitants of any other country in Europe.

Habit is often a dangerous guide, for it may easily and imperceptibly degenerate into senseless prejudice. The English are accustomed to their masses of beef, and to their vegetables boiled in water, and to their brandied wines, and because they are accustomed to them they will not admit that any other food is fit to eat. But it is a cosmopolitan law that what is good for one nation is not necessarily, for that single reason, good for all others too. The English do not growl against kickshaws more fiercely than the French do against British joints, and they are both wrong in doing so, for, influenced by habit and prejudice, and listening to no arguments, they each summarily and blindly condemn the proportion of merit which the other possesses. There is something good in almost everything, and even English cooking is not an absolute exception to the rule, but the French system of feeding possesses the double advantage of infinite variety and intelligent preparation. It is true that the sturdy Englishman can scarcely admit the latter as a real merit, but even the most rabid Britisher will allow that eternity of mutton and beef is occasionally a little fatiguing, and that it would sometimes be agreeable not to be obliged to eat the same joint five days in the week.

One might even venture to go further, and to ask whether the faculty of taste has been given us for nothing, and whether national prejudice can be admitted to constitute a valid objection to the use of one of our senses. The declared object of refined French cookery is to give pleasure to the palate while nourishing the body, and the pursuit of that result has brought about the invention of certain dishes which may almost be classed with vaccination, the steam-engine, and the electric telegraph, among the great discoveries of human genius. For instance, the dinners of the Réserve at Marseilles, with their bourride and their ailloli, though requiring a little previous habit of garlic, present the most curious and intelligent forms of food, while the coquilles d'écrevisses at Vaucluse, the grilled royans and the mushrooms at Bordeaux, and the filets de sole à la Vénitienne, and the filets de bécasse sautés au Madère of the Rue Montorgueil, are compositions of such incredible delicacy and perfection, that they explain how Eugène Sue was inspired to write the famous description of the Chanoine's breakfast in "La Gourmandise," and how he labelled the bottle of Romanée of 1764, "Pour out with compunction and drink with religion."

But satisfactions of this elevated character are only accessible to a few, to the small number of rich and scientific eaters who make dinner the great object of life, and who emulate the faculty claimed by Brillat-Savarin, of distinguishing by the taste which leg a partridge had roosted on. Even the Paris restaurants, where English visitors form their opinions of French habits, which they bring home with them for circulation as absolute truths, do not furnish an example of the ordinary fare of a French family any more than a London fog does of the ordinary English climate. They offer food in too artistic a form for general and practical use; the people eat very differently.

Details of cookery, however, are out of place here; but putting them aside, and with them all the frightful theories of culinary preparation which shock the English mind, raising to the height of a national controversy the question whether peas should be boiled in water or be stewed in butter with flour, lettuce, onions, and sugar, there still remains as a fact which cannot reasonably be disputed, that French feeding possesses the advantage of great facility for change. This facility results not only from skill in cooking, but also from conditions of domestic arrangement which are unknown in England.

The richer classes take coffee early in the morning, and a meat breakfast at eleven or twelve: their dinner consists of soup, fish, or an entrée, one roast dish, one sort of vegetable (served separately), a plat sucré, dessert, and black coffee. But while this list seems to almost correspond, excepting in the form given to vegetables and coffee, with that of an English family, the difference of cost and preparation is great. French dishes are always small; the pieces of meat seldom weigh more than three or four pounds, so that scarcely anything remains for the next day, especially as the servants dine after their masters and eat up what is left. If anything does stand over it serves for breakfast to-morrow. This habit of cooking only just enough for daily wants renders it easy to vary the composition of dinner, for it evades the necessity which exists so cruelly in England of "eating up" large joints. The construction of the kitchen fireplaces is another facility for variety, the half-dozen little charcoal grates, which constitute a French fourneau, admitting as many separate saucepans at once, while roasting goes on at a special detached fire at the side. The peculiarly imitative nature of the French is a further aid, for it enables clumsy peasant girls to become handy cooks after a few months' practice in the towns, and so produces a race of kitchen servants, who, with an ample allowance of all the defects of modern domesticity, have, at all events, the merit of knowing their trade.

The whole system is combined so as to reduce weight and waste, economise fuel, and render variety easy. It is not, therefore, surprising that, notwithstanding the multiplicity of dishes, the cost of living should be moderate. Even now, after all the augmentations of cost which have taken place of late years, a family of three or four persons, with two servants, can live really well in Paris, with good management, for about nine shillings a day, including ordinary wine, kitchen fuel, and all supplementary expenses for food. Charcoal is included in this average for sixpence, which is what it ought to average. As, however, the composition of food in Paris is generally superior to that of the other towns of

France, and is, of course, far above the general average of the whole country, this cost of nine shillings a day does not give a fair idea of the ordinary expenditure of a French middle-class family. In the provinces, and in towns where the price of food is not increased by octroi duties, it certainly does not exceed six shillings a day for five or six people.

But the richer classes constitute only a small proportion of the whole nation, and though a certain interest or curiosity may attach itself to the composition and cost of their dinner, the question of the food of the people at large is a wider and more important subject.

The statistics of consumption in France show that the people are divided into three categories as regards their nourishment, the inhabitants of Paris, the inhabitants of the towns, and the rural population. This distinction is, of course, not absolute in every detail or in every locality, but it is clearly marked in its main outlines.

The food of Paris formed the subject of a remarkable book published in 1856 by M. Armand Husson, chef de division at the Préfecture of the Seine, who, by his official position, was able to get access to the municipal records.* He gives in elaborate detail the quantity and cost of every article which enters into the nourishment of the

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* Les Consommations de Paris.

Parisians. Their daily consumption per head is as follows:

			lbs.	oz.
Solids:—	Bread		1	$1\frac{17}{20}$
	Meat	7 oz.	0	$7\frac{18}{20}$
	Poultry and game	$\frac{18}{20}$		
	Fish		0	$1\frac{6}{20}$
	Butter, cheese, and eggs		0	$2\frac{5}{20}$
	Pastry of all kinds		0	$0\frac{16}{20}$
	Sugar, bonbons, preserves, and honey		0	$0\frac{18}{20}$
	Coffee, chicory, tea, and chocolate		0	$0\frac{7}{20}$
	Fruit, deducting a quarter for waste		1	$0\frac{16}{20}$
	Vegetables, ditto		0	$9\frac{18}{20}$
	Pickles, capers, pepper, and sundries		0	$0\frac{16}{20}$
	Total		3	$10\frac{3}{4}$

			pints.
Fluids:—	Wine	0	$0\frac{11}{20}$
	Beer and cider	0	$0\frac{2}{20}$
	Milk	0	$0\frac{10}{20}$
	Brandy	0	$0\frac{1}{20}$
	Oil and vinegar	0	$0\frac{1}{20}$
	Liqueurs, syrups, &c.		
	Water	14	$0\frac{16}{20}$
	Total	16	0

Since this list was published the limits of Paris have been carried to the fortifications; its detailed composition may, therefore, have become somewhat modified. But, as far as can be judged from the statistics of general consumption for 1860,* the main elements of the above table remain unchanged.

The most striking feature of this list is certainly the extraordinary proportion of fruit which it includes; the total weight of it consumed per head is almost equal to that of bread. This result is so remarkable, that M. Husson draws attention to it himself, and goes into detail to prove its exactness. The quantity of fruit of all kinds annually introduced into Paris is 427,000 tons, calculated on the octroi returns for 1853. But in the foregoing list M. Husson reduces by one-half the proportion of pears, apples, and plums, in order to allow for the quantities absorbed by the manufacture of cider and preserves. The balance remaining is still immense, even after the further deduction of one-quarter of the whole for peel, cores, kernels, and waste, but it has already formed the subject of much discussion in Paris, its exactness has been established, and it may be received with confidence, notwithstanding the singular fact it reveals that each Parisian consumes 1 lb of fruit every day of his life. But this quantity, after all, represents only a very small comparative ration of real food, the proportion of water which enters into the chemical composition of fruits being so large that they furnish very little sustenance; their great effect is to refresh rather than strengthen.

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* Annuaire du Bureau des Longitudes, p. 154, 1862.

With the exception of the small proportion of oranges, which are dear, and comparatively little used in Paris, the composition of the fruit consumed presents nothing remarkable; only 5,000,000 oranges are eaten annually, while 3,500,000 lemons are used per annum. This gives approximatively 4 or 5 oranges and 3 lemons per head per year.

The annual weight of vegetables used in Paris is 144,000 tons, of which potatoes, though at the head of the list, furnish only 26,000 tons; cabbages amount to 20,490 tons, carrots to 20,550 tons, leeks to 12,600 tons, salad to 6030 tons, onions to 3000 tons, garden sorrel (oseille), which is not known as a vegetable in England, to 7560 tons, and small herbs for seasoning dishes to 2000 tons. The feeble proportion of potatoes, amounting to less than one-fifth of the whole vegetable consumption, and the large quantities of other garden produce, are consequences of the French system of eating vegetables separately and of using them in soups. The number of different vegetables included in M. Husson's list of importations into Paris is another peculiarity; they amount to no less than forty-seven sorts, many of which are not used in England, while some of them are altogether unknown here. Seakale is the only English vegetable which is not grown in France.

The bread eaten in Paris is composed almost exclusively of the best wheat flour, the Paris workman being very particular about the quality of his loaf; of the 184,600 tons of bread consumed in 1854, only 3941 tons were of second flour.

The bakers of Paris are under the control of the municipality, and cannot establish a shop without permission. The main object of this regulation is to assure, by the direct intervention of the state, that the price of bread shall not rise too high in the capital in consequence of variations in the price of flour. To effect this, the town has established a special floating fund, which pays the extra cost of bread when flour is dear, and receives the extra profit when it is cheap again. There are still variations in the price of bread (which is fixed every fortnight by a municipal decree), but this arrangement renders famine prices impossible. The average cost of white bread from 1823 to 1854 was 1½d. per pound.

Of the meat annually consumed in Paris, 66,000 tons are composed of beef, mutton, and veal, and 10,800 tons of pork. Poultry and game enter into the general consumption for 10,365 tons, of which game constitutes 1261 tons. It is difficult to give reliable prices for these various articles without going into too much detail; but they may generally be said to be a little under the London rates, notwithstanding the addition of the octroi duties. The question of comparative quality is a matter of personal appreciation which can be brought to no general test. The mutton, especially what is called pré salé, is as good as the English; the beef is very fair, and as it is small and seldom stall fed, it is free from that greasy taste which artificial fattening so often gives to English cattle. The veal, however, is decidedly inferior both in taste and whiteness. The poultry of all kinds is small and skinny, and is in no way equal to the produce of English farm-yards.

The consumption of fish is much smaller in Paris than in London; the total quantity of all kinds which annually enters Paris is 13,444 tons, of which fresh-water fish contribute 690 tons, and oysters 1005 tons. The use of fresh-water fish is very limited; it is almost localised in the restaurants on the banks of the Seine, where fried gudgeons form the principal dish. The demand for these small fish is so considerable in the riverside taverns during the summer season, that, in the impossibility of providing enough of them, the cooks are said to cut up sea eels into gudgeons with a punch of the requisite shape; when these impostors are fried and covered with parsley, it is not easy to distinguish them from the real fish.

More than half the milk supplied to Paris arrives every morning by special trains from the dairy districts; the greater part of the rest comes from the neighbouring villages, very little being produced in the town itself.

The consumption of liquids presents nothing remarkable. It should, however, be noticed, that the quantity of water indicated includes the proportion employed for cooking and for all domestic purposes.

The composition of food in Paris does not represent that of the other towns of France; considerable variations exist between different localities. While each Parisian eats 160 lbs. of meat per annum, the inhabitants of Le Mans average only 94 lbs., the other towns varying between these two extremes. After Paris, Rennes and Bordeaux present the largest consumption of meat; and Nantes, Toulon, Caen, and Le Mans the lowest. The wide-lying positions of these various towns proves clearly that the greater or less use of meat is in no way regulated in France by conditions of climate or temperature. The largest absorption of wine is at Bordeaux, where each individual drinks 345 pints of wine per annum; the other wine-growing centres follow next; Paris comes about the middle of the list; and the minimum is found at Caen, where the annual consumption is only 20 pints per head; but Caen, which is in the middle of the Normandy apple country, drinks 378 pints of cider a year, while Bordeaux takes none at all. The greatest consumption of beer is at Lille, where each individual consumes 271 pints per annum; and the smallest is at Bordeaux, where the annual quantity per head is only six pints. Brandy is mainly drunk in Normandy; at Rouen, for instance, the average quantity taken by each individual amounts to the large total of 35 pints per year.

In order to prove that the Parisians are well fed, it would be necessary to compare the list of their nourishment with that of the inhabitants of the other principal capitals of Europe; but there is no reliable information on which to base such a comparison. Even for London there are no complete statistics on the subject. The only calculation which includes more than two or three items is quoted by M. Husson, from Mr. Porter's "Progress of the Nation." Based on that table the annual results are as follows, as regards the items mentioned:

	London.	Paris.	
Meat	211 lbs.	160 lbs.	
Bread	328 ,,	396 ,,	
Potatoes and vegetables	141 ,,	300 ,,	without deducting the waste
Butter and cheese	34 ,,	32 ,,	
Milk	84 quarts	91 quarts	
Beer	123 ,,	113 ,,	including wine, beer, and cider

This table shows that the Londoner eats more meat than the Parisian, and that he drinks more beer alone than the total liquid consumption of the Parisian, but in the other articles Paris has the advantage, especially in bread and vegetables.

The consumption of meat in London is often quoted as the highest in Europe, but this is not yet proved by statistical returns; indeed, the Germans pretend that Vienna shows a larger figure still. But without pursuing these doubtful points, it is obvious that, admitting the above quantities for London, on the strong authority of Mr. Porter, the Parisians are on the whole quite as well fed as the Londoners, if not better.

The composition of subsistence in the country districts offers marked differences with that shown for the towns. Among the rural population of every country bread is the great staple of food. France is no exception to this rule; the only peculiarity of the nourishment of the French peasants being the quantity of vegetable soups which they eat.

While in the towns bread is made almost exclusively of wheat-flour, the rural districts still employ rye, barley, buckwheat, oats, and maize, according to the locality, but, with the exception of maize, in diminishing proportions; the use of wheat-bread is increasing in almost every direction. The production of wheat in France has risen from 144,375,000 bushels in 1815, to 225,500,000 bushels at present; of the latter quantity 35,750,000 bushels are kept for seed, leaving 189,750,000 bushels, which may be said to be entirely made into bread, the proportion used for feeding animals, or for industrial purposes, not exceeding 3,000,000 bushels per annum. The annual consumption of wheat by the whole population of 36,000,000 is, therefore, just over 5 bushels per head. According to M. Maurice Block ("Statistique comparée de la France"), the weight of bread made with this quantity of corn is 306 lbs.; so that for the whole country the average daily consumption of wheat-bread is about 14 oz. per head.

Rye-bread enters in the nourishment of the people for 100 lbs. per head per annum, or 4½ oz. per head per day.

The annual consumption of barley, after deducting the quantity employed for the keep of animals and the manufacture of beer, gives about 33 lbs. of bread for each person, or 1½ oz. per day.

Maize, or Indian corn, is used only in certain districts, particularly in the Landes and Franche-Comté, but its consumption is increasing; its present average is 16 lbs. per head per annum, or two-thirds of an ounce per day.

The quantity of oat-bread is small; it amounts to about one-sixth of an ounce per head per day.

Buckwheat is employed only in certain parts of the western provinces, especially in Brittany; its daily consumption is about 1½ oz. per head.

Adding together these various elements, the total daily consumption of bread of all kinds in France comes out at the following average per head of the whole population:

	lb.	oz.
Wheat-bread	0	14
Rye "	0	4½
Barley "	0	1½
Maize "	0	0⅔
Oat "	0	0⅙
Buckwheat-bread	0	1½
Total	1	6⅓

The consumption of meat has not been officially published, as a whole, since 1839. It was calculated for that year by the authors of the Government Statistics at 43 lbs. per head, of which 24 lbs. were composed of beef, mutton, and veal, and 19 lbs. of pork. But while these were the general averages for the whole country, it was shown that in the 375 principal towns, with a population of 5,000,000 souls, the individual consumption stood at 107¼ lbs., leaving only 15 lbs., composed principally of pork, for the other 29,000,000 inhabitants. It is probable that since 1839 the meat nourishment of the peasantry has improved, and that new researches would now show a better result; but in computing the general total of meat, the only figures which can be taken are those which have a character of reasonable certainty, therefore the average of 43 lbs. found in 1839 must be maintained for the moment; it gives 1⅞ ounce per day. As regards the towns, however, the published statistics extend to 1854, and show that their consumption of meat had risen since 1839 from 107¼ lbs. to 117½ lbs. per head; this increase is especially sensible since 1851, but the use of pork seems to have diminished a little, though it certainly continues to constitute, in the form of bacon, the Sunday dinner of the village populations.

The production of potatoes in France, notwithstanding the prevalence of the disease, has quintupled since 1815: it amounted to 280,000,000 bushels in 1857. Of this quantity 36,000,000 bushels are retained for planting, and about 40,000,000 bushels are employed for making fécule, distillation, and other manufacturing purposes. The quantity remaining is, therefore, 204,000,000 bushels, of which it is estimated that a quarter is used for feeding animals, leaving about 150,000,000 bushels for human food. Taking the bushel to weigh 56 lbs., the total annual consumption of potatoes comes out at 233 lbs. per head of the whole population, or 10⅕ ounces per day. Here the proportion between town and country is the inverse of that found for meat: Paris, for instance, with its 1,200,000 inhabitants, consumed only 26,000 tons of potatoes in 1854, which gives 48 lbs. per head per annum, or about one-fifth of the average consumption of all France. It is doubtful whether the other towns present the same result; the use of potatoes is probably general out of Paris, and helps in the rural districts to compensate the diminution on meat.

The general consumption of fruit and of vegetables other than potatoes is difficult to determine, for the statistics published on the subject only give the money value of the crops without any indication of their quantity. It is true that as regards the produce of regular farms quantities are given, but for private and market gardens the value alone is quoted, and it is, of course, impossible to base thereon any estimate of the amount of food produced. Private kitchen gardens cover a surface of 617,000 acres in France, and M. Block estimates the value of their present annual produce at 12,600,000*l.*, while the extent of orchards and gardens of every kind, without distinction, amounts to about 1,500,000 acres, or 1.16 per cent. of the whole surface of the land. Now, as France contains scarcely any parks, and only a comparatively small proportion of flower-gardens, it is probable that the greater part of this surface is occupied by the cultivation of fruit and vegetables, and that the feebleness of the total garden space as compared with Great

Britain, where it amounts to 6.84 per cent. of the whole country, or with Spain, where it reaches 6.93 per cent., does not prove anything as regards the production of vegetable food, for in England and Spain parks and ornamental grounds constitute by far the greater part of what is counted as garden. Indeed, the consumption of fruit and vegetables in France is outwardly and visibly higher than in neighbouring countries, and though there are no present means of calculating it exactly, it cannot be doubted that the consumption of the whole country is equal to that of Paris as concerns vegetables, and to at least half that of the capital as regards fruit. At this rate the daily use of vegetables (other than potatoes) would amount to 8 ounces per head, and that of fruit to 8¼ ounces. These are only arbitrary computations, but those who are acquainted with the habits of the French peasantry will not think them exaggerated.

The consumption of sugar has risen from 1 lb. per head in 1822, to 14 lbs. 3 oz. in 1858; in the latter year each individual consumed 1 lb. 10 oz. of coffee; tea and chocolate are increasing in use, but their present average annual consumption does not exceed 4 oz. per head. Grouping together these various articles, they produce a total of 16 lbs. 1 oz. per head per annum, or about two-thirds of an ounce per day.

About butter, cheese, and eggs, there is no information at all; they may be classed together at an average of half the consumption of Paris, say 1⅛ oz.

Fish and pastry must be included in the general estimate for the whole country, but as they are almost solely used in the towns, their proportion per head on the whole population is nearly inappreciable. It cannot exceed half an ounce per day at the outside.

The total daily average ration for all France comes out, therefore, as follows:

	lbs.	oz.
Bread	1	6½
Meat	0	1⅞
Potatoes	0	10⅕
Vegetables	0	8
Fruit	0	8¼
Fish and pastry	0	0½
Sugar, coffee, tea, &c.	0	0⅖
Butter, cheese, and eggs	0	1⅛
Total	3	5

Now this list, while giving an approximate average for the whole population, does not indicate the composition of the daily ration for either town or country, and without that subclassification it would produce an erroneous idea of the real nature of the food of the three categories of consumers into which, as has already been remarked, the people of France must be divided.

The ration of bread in the towns generally is certainly a little higher than in Paris, but it is lower than the average for all France; as the consumption of Paris is 1 lb. 1 17-20 oz., and that of the whole country 1 lb. 6 1-3 oz., the average for the towns may be roughly estimated at 1 lb. 3 oz., leaving about 1 lb. 7 oz. for the rural districts. The town ration of meat in 1854 amounted to 5⅛ oz.; it may, therefore, be calculated at 1¼ oz. for the country. The other items are left unchanged, not because they present no difference, but from the excessive difficulty of appreciating them fairly.

Adopting these estimates, the three categories of daily rations would stand as follows:

	Paris.		Towns.		Country.	
	lbs.	oz.	lbs.	oz.	lbs.	oz.
Bread	1	1 17/20	1	3	1	7
Meat	0	7 18/20	0	5⅛	0	1¼
Fish	0	1 6/20	0	0½		
Pastry	0	0 16/20				
Butter, cheese, and eggs	0	2 6/20	0	1⅛	0	1⅛
Sugar, coffee, &c.	0	1 6/20	0	0⅔	0	0⅔
Fruit	1	0 15/20	0	8¼	0	8¼
Vegetables and potatoes	0	9 18/20	1	2⅕	1	2⅕
Sundries	0	0 15/20	0	0 4/20	0	0 1/20
Totals	3	10¾	3	5 1/12	3	4⅛

These results come so near each other, and produce so fair an average, that it may be admitted that such parts of the foregoing calculations as are arbitrary or hypothetical are not far wrong. The two great items of meat and bread may be considered to be nearly exact—at all events, sufficiently so for all general purposes; the most doubtful item is that of vegetables, of which the quantity shown for the country and the towns appear to be very large, but it should be repeated that the use of cabbage, carrot, leek, bean, and onion soups, is universal amongst the labouring classes in France; the quantity of 1 lb. 2$\frac{1}{5}$ oz. per day should not, therefore, be discarded solely because it is high. The question is an open one, precisely because it is so difficult of solution, but the rate of consumption of fruit in Paris would be denied if it were not officially proved, and the quantity of vegetable food estimated for town and country is very little higher than that of fruit in Paris. Furthermore, the quantity is made up, for more than half its total, of potatoes alone, of which the quantity is known and is shown in detail.

Of course the above quantities are not all really eaten; there is more or less waste on all of them; but it is worthy of notice that while the country ration appears to be the lowest, it contains so little meat that the loss on bones and fat reduces it less than the other two categories. The general average of 3 lb. 5 oz. for all France represents, probably, about 2 lb. 12 oz. of real effective food for every man, woman, and child, and that ration is high enough to prove what was said at the outset, that variety does not exclude solidity in the composition of the nourishment of the people of France, and that instead of living on kickshaws, the French are, on the contrary, as well fed as any other people in Europe.

The consumption of liquids presents the same differences as that of solids. In 1856 the consumption of wine for all France stood at 75½ pints for each individual, while calculated on the towns alone it amounted to 113½ pints. Starting from these data, M. Block calculates that the rural population drinks 65 pints of wine per head per annum. The consumption of beer, which is rapidly rising (though only in the northern and eastern provinces), amounts to 34½ pints, and that of brandy to 4 pints; the total consumption of cider is not known, but in order to include it in the list it is put at the same quantity as beer. From the insufficiency of data, the rations of liquids cannot be divided into three classes of Paris, towns, and country; all that can be done is to group them for Paris and for all France:

	Paris.	France.
	pints.	pints.
Wine	11-20	4-20
Beer	2-20	2-20
Cider		2-20
Brandy	1-20	1-100
	14-20	7-20

Milk, oil, vinegar and water, of which no calculation can be made, are not included in this comparison, which only serves to show that the Parisians absorb just twice as much fermented drinks as the average for the whole country.

No estimate can be made of the cost of food as applied to all France, but M. Husson gives a table of the expenditure in Paris, showing the difference of the annual outlay per head for most of the items of food between 1788 and 1854:

	1788.			1854.		
	£	s.	d.	£	s.	d.
Bread	1	7	6	2	9	7
Meat	2	14	0	3	1	9
Wine	2	3	4	3	2	11
Beer and cider	0	1	9	0	3	5
Brandy	0	3	2	0	11	5
Fish	0	8	2	0	11	2
Butter	0	7	0	1	0	5
Cheese	0	3	2	0	5	7
Eggs	0	4	8	0	6	10
Fruit and vegetables	0	16	9	3	9	5
Vinegar	0	0	6	0	0	6
	£8	10	0	£15	3	0

Every article but vinegar has risen in value (as well probably as in quantity) in the interval between these two dates, but the augmentation of fruit and vegetables is its most striking item; for these the increase is certainly in quantity rather than in cost. The general average for 1854 comes out at 9¾d. per day, which is not a high rate for a capital, and this figure confirms the assertion made at the commencement of the chapter, that a middle-class family of five or six persons can live well in Paris for 9s. a day.

But two hundred years ago the cost of existence was very different. A letter exists, written in 1678 by Madame de Maintenon to her brother, Comte d'Aubigné, giving him an estimate of what it ought to cost him daily to keep house in Paris with his wife and ten servants. This curious list quotes 9s. 5d. per day for food, 1s. 7d. for firing, and 9d. for lighting—total 11s. 9d. It is true that there is no mention of vegetables, nor of a quantity of other articles which are now of daily necessity, even for the poor, but for the items quoted in detail the cost is about one-third of the present rates.

There remains one article of consumption which, though it cannot yet be called food even by its most faithful votaries (Mr. Alfred Jingle did say, however, that it was "meat and drink to him"), cannot be omitted in this examination of the daily wants of the French people. Tobacco is so universally used, and it occupies so important a place in the habits of French everyday life, that its consumption ought to be added to that of the articles of ordinary nourishment.

The sale of tobacco, in all its forms, is a monopoly of the government, and brings in an annual revenue of more than four millions sterling. Since 1830 the quantity used has doubled; the sale in 1856 amounted to the following quantities:

Snuff	7,115 tons.
Smoking tobacco . . .	16,009 „
Cigars made in France . .	1,927 „
Foreign cigars	130 „
Total . .	25,181 „

This consumption represented a value of 7,220,000*l.*, or an average of 4s. per head of the whole population. It is calculated that there are in France 6,500,000 smokers, who consume about 6 lbs. of tobacco each per annum, at an average cost of 17s. 8d. per head, and 6,000,000 snuff-takers (this number seems exaggerated), who use about 2½ lbs. each, spending 7s. 7d. In Paris the consumption is proportionately higher, and its increase is more rapid than in the other parts of France. M. Husson says that each Parisian uses 4⅓ lbs. of tobacco, 143 cigars, and 4 cigarettes per annum, which represent at least four times these quantities for those who really smoke. Paris alone consumes one-fourteenth of the total quantity of tobacco burnt in France, though its population (before the annexation of the banlieue) was only one thirty-fourth of the whole.

CHAPTER VI.

LAND.

The official survey of the surface of France was commenced in 1808 and finished in 1842. It shows a total area of 129,252,724 acres, divided into 126,210,194 fields or pieces.* (It is scarcely necessary to remark that Savoy and Nice are not included, for they did not form part of France when this survey was made. They add 2,994,424 acres to the above total,† carrying the present surface of France to 132,247,148 acres.) Each separate property, no matter how many pieces it includes, nor of what size or nature it be, cultivated or uncultivated, and whether built on or not, is marked on the map by a taxing number, called the cote foncière, and this number, or cote foncière, constitutes the topographical and fiscal denomination of the property to which it applies.

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* Statistique Générale de la France, 2^me^ série, vol. ii. p. 12.

† Annuaire de l'Economie Politique, p. 1, 1861.

The total of these cotes foncières in 1842, according to the survey then completed, was 11,511,841. But these figures refer, in fact, to the whole thirty-four years, between 1808 and 1842, and do not apply to any particular year; for the numbers given for the departments which were surveyed first date necessarily from 1808, while those which relate to the last districts executed belong to 1840 or 1841. This difference of date in the calculation of the various elements of the survey destroys its value as applicable to any one year; and though the statistics of France quote the number of 11,511,841 cotes foncières as officially belonging to the year 1842, and though that date must therefore be accepted as the legal point of departure of those statistics, it is obvious that the figures in question cannot be depended on as really indicating the exact number of separate properties into which France was then divided.

This difficulty is important, for if the annual augmentation of cotes foncières is to be admitted to constitute an absolute indication of the progress of the division of the soil, which is the great problem attached to the land question in France, it is clearly essential to have a determined point to start from. And this is the more interesting in consideration of the attacks directed against the law of equal inheritance, not only in countries where a different legislation exists, but also by a small party in France itself. If, by the action of this law, the number of cotes foncières is increasing rapidly, then it would follow that in a period which, although long, might be approximatively calculated, the surface of France would become divided into lots so infinitesimally small, that, as is urged by the adversaries of the law, agriculture might become unproductive from having no space to work on, and the taxes on real property, which at present constitute about one-sixth of the whole revenue of the country, might cease to be practically recoverable.

It is easy to understand why the few remaining representatives of the system destroyed in 1789 should endeavour, by gloomy forebodings, to obtain the reconstitution of entails as a first step to the re-establishment of aristocratic conditions of society; but neither their facts nor their arguments appear to be well founded.

The present state of division of the soil of France is not a consequence of the law of equal inheritance. It existed to a great extent long before that law was enacted. It is known, and the authority of Arthur Young confirms the fact, that years before the Revolution, while the old régime was still in force, one-third of the surface was already owned by small proprietors. Then came the confiscation and sale, in the last years of the eighteenth century, of the properties of the émigrés and the clergy, the great mass of which were bought by the rural population and converted into small holdings. It was not till after the land had thus been already cut up that the obligatory division of inheritance came into force; so that even if it could be proved that the development of small holdings is dangerous to the prosperity of the country, this development cannot yet be attributed to any material extent to the compulsory division of inheritance.

It is asserted by the opponents of the present law that the subdivision of the land has largely progressed since the commencement of this century, and, consequently, after the causes just indicated had produced all their effect; that there were only 10,083,751 cotes foncières in France in 1815, and 13,122,758 in 1854, and that the multiplication of properties in those forty years, which was 30 per cent., or at the rate of ¾ per cent. per annum, was, at all events, due to divisions of inheritance. On this they argue that the whole present number of properties will be doubled in one hundred and thirty-four years. But the starting-point of this calculation is incorrect. The 10,083,751 cotes foncières given for 1815 were certainly published by the government of the period, and may therefore be supposed to be officially given; but they resulted not from any known facts, but from a simple estimate based on the results of the small part of the survey then executed; the quantities found in a few departments were summarily applied to the proportionate surfaces of all the remaining departments, and so the above total was obtained. The proof of the inexactness of this way of counting is furnished by the official statistics themselves. In order to arrive at another anticipatory total, by the same system of induction, calculations were made and published in 1826, when the survey was about half finished, showing that the general sum of cotes foncières in all France was 10,296,693, while, by another computation made in 1835, they were again estimated at 10,893,528. But as the very author of these calculations, M. Moreau de Jonnès, has since most justly observed,* they upset each other; for whereas the increase they show for the eleven years, between 1815 and 1826, is 212,942, it amounts to 596,835 for the nine years between 1826 and 1835—a variation of the rate of progress which is manifestly inadmissible. These guess-work calculations show the danger of trying to compute the whole from one of the parts; the process may be possible in comparative anatomy, but it is most unsafe in matters of account.

For these reasons, all the figures put forward as antecedent to 1842 must be regarded as imaginary; it is not, therefore, necessary to examine the arguments which are based on them. And even the figures of 1842 have a somewhat limited value, not only from the long period over which their collection extended, but from the great probability that many numbers were accidentally omitted in the laborious and intricate operations of the first survey. This probability is supported by the fact, that while the total number of cotes foncières amounted to 11,511,841 in 1842, it had risen to 12,549,954 in 1851; that is to say, the apparent increase in these nine years was 1,461,203, or nearly 1½ per cent. per annum, a rate of progress not only out of all proportion with that of the other periods calculated, but which is especially improbable in the face of the comparatively sluggish state of France, and of the absence of all speculative activity during the time. It certainly cannot be proved that the survey which finished in 1842 was incomplete, but there is strong presumptive evidence that it was so, and to a very great degree.

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* Eléments de Statistique, p. 387.

It is prudent, therefore, to put aside all these doubtful numbers, and to take the more recent quantities officially given in the second volume of the second series of the General Statistics of France, after the original survey had been well checked in every department, though there, again, a new difficulty arises.

As has just been remarked, the cotes foncières for 1851 amounted to 12,549,954, while in 1854 they had risen to 13,122,758. The augmentation in those four years was, therefore, 572,804, which is equal to about 1 per cent. per annum. Now this proportion is absolutely higher than that of $\frac{3}{4}$ per cent., already indicated as inexact; because it results from a comparison of the guess-work figures of 1815; if, therefore, it were not susceptible of explanation, it would furnish a stronger and more undeniable proof than any yet advanced that the law of compulsory division is rapidly multiplying the number of lots. But this exceptional progress resulted from two great and special momentary causes totally independent of the normal conditions of the land market. In the years between 1852 and 1854, after confidence was re-established by the foundation of the Empire, and before it was again disturbed by the Crimean war, France was in a most feverish state of industrial and speculative activity. Joint-stock companies of every kind came before the public with subscriptions of shares, half the population devoted itself to Bourse speculations, and the national character seemed to suddenly change—abandoning the old habits of hoarding and solid investments for the sake of the profits which suddenly tempted it in a new direction. These influences acted most powerfully on the middle classes, and in order to satisfy their new dispositions they sold in every direction the landed property which they had still retained in order to invest in shares the capital which it represented. This peculiar and momentary condition of the money market produced more voluntary sales of land in those years than had occurred in the whole of the first half of the century. The land thus brought into the market was eagerly bought by the rural population, who found in these special circumstances a rare opportunity of satisfying their longing after land; but as, from want of means, they could only buy in small pieces, the number of lots, and consequently the number of cotes foncières, increased in proportion to the number of buyers. This is the first explanation of the increase of cotes foncières from 1851 to 1854.

The second cause arose from exactly similar sources. During these same three years building went on in France with astonishing rapidity. In Paris, Lyons, Marseilles, and many other great towns, whole districts were covered with new houses, and as every new building lot bears a new number and represents a new cote foncière, a very large augmentation was produced in this way.

These circumstances have not yet been brought forward by the French writers on the subject, but all France knows that they existed, and the only doubtful point about them is the determination of the exact amount of influence which they exercised.

The increase of 1 per cent. per annum in the quantity of cotes foncières between 1851 and 1854 was, therefore, momentary and exceptional, and cannot be attributed to the effect of the division of inheritance.

As the published statistics bearing on the subject only come down to 1854, the movement since that date cannot be determined. The question rests, therefore, for the moment, between the difficulty of inexact figures previously to 1851, and the difficulty of a sudden augmentation produce by special causes from 1851 to 1854. Of course the division of the soil of France is progressing, and the rate of increase in the number of lots has risen, under the accidental circumstances just mentioned, as high as 1 per cent. per annum, but it cannot be admitted that the normal augmentation approaches that quantity. The average annual progress in ordinary years is probably not superior to ½ per cent. This, however, is but an estimate, and its correctness cannot be determined till the experience of several more years has indicated the regular rate of the movement; but it seems, under all circumstances, to be a reasonably probable figure.

Admitting, therefore, that the subdivision of the surface is at present regularly advancing at this latter rate from the effects of the law of equal inheritance, it does not follow that any evil consequences will necessarily ensue from the multiplication and consequent diminution in size of the properties into which it will divide the land. It must first be shown that the multiplication will really continue at its present rate up to a point where danger would arise.

The first step in the examination of this part of the question is to fix the present proportions of the division of the soil among its owners. But no one knows how many landed proprietors there are in France. They have never been counted. Several estimates of their number have been made, more or less discordant with each other, but there is no positive and recognised result. The only information on the subject which presents itself with an official character is a calculation made during the first Empire by the Duke de Gaète, who was then minister of finance; he estimated that the average division of property was at the rate of two cotes foncières to each proprietor. As this proportion has recently been confirmed by M. Moreau de Jonnès, director of the Statistical Department at the Ministry of the Interior, who considers that it continues to apply at the present time, it may be received with as much confidence as can be attached to a result which, after all, is only a presumption. Taking, therefore, two cotes foncières to each proprietor, the 13,122,758 cotes of 1854 would give 6,561,379 proprietors—more than one-sixth of the whole population, which was then 36 millions.

Now, if the division of the soil continues to progress at the supposed rate of $\frac{1}{2}$ per cent. per annum, this number of proprietors would evidently be doubled in two hundred years, and would rise to 13,122,758 in that period. But as the present rate of increase of the population is only about $\frac{1}{4}$ per cent. per annum, the whole total of inhabitants would only rise from 36 to 48 millions in the same two hundred years, even admitting that this advance takes place at all, which, as is shown in the preceding chapter on population, is by no means certain. The consequence would be that, if these two results were both realised, more than a quarter of the whole population of France, men, women, and children, would become individual landed proprietors in two hundred years. But allowing to an unlimited extent for the possible effects of the peculiarly national longing after land, it cannot be admitted that, under any circumstances whatever, one-fourth of the entire nation can ever acquire it; such a result would, in fact, constitute every single family in the country a holder of the soil.

In the fact of this inadmissible hypothesis, it is prudent to suppose that the land market in France will be guided, like all other markets, by the relations between demand and supply, and that as soon as the rural populations, who are now almost the sole buyers, have absorbed all they can take (a result which, from the great outlay this class has already incurred, cannot be far off), the progress of division will cease from the want of new purchasers. Inheritance alone, when directly applied—that is to say, when the children divide their parents' land between themselves without sale—is not a probable source of great subdivision, for though the average of agricultural families shows two and a half children to two parents, and though there is, therefore, an apparent multiplication of one-fifth at each transmission, the fact is, that from the consumption of men at the army, and from the growing migration to the towns, the number of children who really inherit village properties scarcely exceeds the number of the parents they replace.

Another reason for expecting that the present demand for small properties will diminish is, that the value of land in France is constantly and regularly rising. For the last twenty years, notwithstanding the sales lately effected by the middle-class owners who seek other investments, this value has gone up almost steadily at the rate of about 1 per cent. per annum; so that even if the number of buyers were to progress in proportion to the number of sales, the augmentation of price would finally paralyse the demand.

For these reasons it may be admitted that even if the number of cotes foncières, and, consequently, of separate holdings, should continue to increase, this augmentation will not continue to be accompanied by a similar rise in the number of separate proprietors. The latter quantity will probably go on slowly advancing for some years yet, finally coming to a stand-still; the only result will be, that there may be two and a half, or even three, lots to each proprietor, but there can be no danger for agriculture in that consequence.

And even if the number of separate proprietors did rise to the improbable total of 13,000,000, the superficial division between them would not become excessive, as applied to such a country as France, where small holdings are suited to the character and tendency of the people.

With the present supposed number of 6,561,379 proprietors for the total surface of 129,252,724 acres, the average surface owned per head appears to be 19⅗ acres. But this figure does not represent the real rate of division. The surface of every country contains an important area which is useless for production, and that area must be excluded from a calculation of the average proportion held by each of those who really get their living out of their land.

The surface of France is composed as follows:

Cultivated:	Arable land		63,186,497	acres
	Grass land		12,743,295	„
	Vines		5,163,618	„
	Orchards, gardens, &c.		1,551,741	„
	Willow and osier beds		159,849	„
	Olive, mulberry, and almond plantations		273,491	„
	Chesnut woods		1,393,043	„
	Total area cultivated		84,471,534	„
Forests:	Private and communal forests	19,025,015		
	State forests	2,611,071		
			21,636,086	„
Uncultivated:	Quarries and mines	10,313		
	Pools and irrigation canals	42,980		
	Navigable canals	30,314		
	Heaths, commons, peat grounds, rocks, and mountains	17,712,872		
	Ponds	441,446		
	Houses, &c.	605,256		
	Roads, streets, and public places	2,724,227		
	Rivers, lakes, & streams	1,089,690		
	Churches, cemeteries, and public buildings	36,484		
	Sundry	451,522		
			23,145,104	„
	General total		129,252,724	„

In round numbers, 65 per cent. of the surface of the country is cultivated, 17 per cent. is in forest, and 18 per cent. is uncultivated.

It is reasonable to suppose that the forests and uncultivated parts of the surface are generally held in large lots, for the nature of such districts scarcely allows their subdivision into small pieces. It is therefore probable that the great mass of the little properties exist on the 85,000,000 acres occupied by culture and houses. Taking, therefore, the 13,122,758 cotes foncières of the year 1854, and calculating that, on the proportions of the land-tax list of 1842 (given hereafter), 12,500,000 of them pay less than 4*l.* per annum for taxes, and may consequently be classed together as small properties, it results that each of these 12½ millions of separate holdings would consist on an average of 6⅘ acres; and as the theory is that there are two cotes foncières to each owner, each small proprietor would then own 13⅗ acres, instead of the general average of 19⅔, which resulted from the first calculation above.

There would remain 622,758 cotes foncières applicable to the large properties, paying from 4*l.* to 40*l.* a year and upwards, for taxes, that is to say, to a total surface of about 37,000,000 of acres (the state forests, canals, roads, rivers, and churches, being deducted, as not representing property in the ordinary sense of the term): the proportion for this class would, therefore, be 594 acres for each cote foncière, or 1188 acres for each proprietor.

If, therefore, to resume the argument, the number of proprietors really became doubled in

200 years, or any other period, the average surface of the small holdings would fall from 13$\frac{3}{5}$ acres, which it may now be imagined to be, to 6$\frac{4}{5}$ acres; an area which, according to present experience, is not too small to be productively cultivated.

The list just referred to of the composition of the land-taxes for 1842 (the latest date to which it is published in detail), generally confirms the above estimates of the average superficial division. It shows the number of cotes foncières included in each successive category of tax-payers:

5,440,580	properties paid	less than	4s.	taxes per annum
1,818,474	properties paid	from	4s. to 8s.	,,
1,614,897	,,	,,	8s. to 16s.	,,
791,711	,,	,,	16s. to 24s.	,,
744,911	,,	,,	24s. to 2*l.*	,,
607,956	,,	,,	2*l.* to 4*l.*	,,
440,104	,,	,,	4*l.* to 20*l.*	,,
36,862	,,	,,	20*l.* to 40*l.*	,,
16,346	,,	,,	40*l.* and upwards.	
11,511,841				

Now, though this table proves nothing direct as regards surface division, because the annual value (on which the taxes are levied) varies for the same space with the fertility of the soil, or with the nature of the building which stands on it, 10,000 acres in the Landes being worth less than a quarter of an acre in Paris, and one being undistinguishable from the other in the above table, it shows how small a proportion of the properties into which France is divided pay more than 4*l.* a year taxes; the general supposed average of 13$\frac{3}{5}$ acres per head is therefore not upset by the existence of any considerable number of really large properties which would reduce the proportionate area of the rest.

Such large properties as still remain in France will perhaps continue to exist, though rather as a satisfaction to family feelings than as a means of preserving agriculture on a large scale. This question, however, is too difficult and uncertain to be decided at present.

The division into small properties is facilitated by the simple conditions under which land is transferred from the seller to the buyer. There is no such thing as conveyancing in France. The sale or inheritance of every piece of land is registered by the state; the notaries, who alone have the power to manage such transfers, being obliged, under heavy penalties, to effect their registration, and the simple fact of undisputed registration constitutes a legal title, though of course the state does not guarantee it. Three months are allowed after a purchase to advertise for mortgages, and then all is complete. The deeds of preceding sales of the property in question are usually handed over to the buyer, but they do not constitute the title to the property, it is the registration which gives it. This obligatory registration, which is paid by the purchaser, or heir, at the rate of about three per cent. on the nominal value of the property (the full value is never stated), brings in a large income to the state; indeed, it is calculated that a sum equal to the whole value of the land of France will pass into the hands of the government in this way every 200 years.

A remarkable feature in the employment of the soil is the large surface, 17 per cent. of the whole, which is occupied by forests. These forests are of great importance to the country, and are subject to severe laws: the conditions under which timber may be cut are exactly defined and rigidly executed, the object being to prevent waste and to ensure a constant and sufficient supply of wood for the general wants of the country, not only for building, carpentry, the manufacture of wine-casks, and trade generally, but more especially for firing and charcoal. The latter article alone constitutes an immense trade, not only for cooking (for which it is almost the only fuel used in France), but for smelting iron, the original iron trade of the country having been originally based on charcoal furnaces, and three-eighths of the total production being still charcoal iron.

The uncultivated proportion, though apparently representing 18 per cent. of the whole, is really limited to the 17,700,000 acres (13$\frac{3}{4}$ per cent.) occupied by mountains and heaths, the rest being occupied by water, roads, &c.; and as the southern and eastern frontiers, and a part of the centre, are almost exclusively composed of mountainous districts, this total cannot be considered to show any want of activity in reclaiming waste land. Indeed, the contrary is rather the truth. In Auvergne, for instance, cattle-feeding is carried on up the hill-sides to the limit where it ceases to be productive, and if the same is not yet the case in the Pyrenees, the Alps, and the Jura, it is because the population of those districts is still too scanty to utilise the surface at its disposal.

The cultivated part of the soil of France does not, as a whole, present very different features now from those which were so exactly described by Arthur Young seventy years ago. The value of agricultural production has risen in the interval from 96,000,000*l.* to 280,000,000*l.* per annum, but the general conditions remain the same. There is, however, one remarkable change. Since the commencement of the present century there has been a constantly growing increase in the variety of the plants cultivated, and without entering into the general question of French agriculture, which is a subject apart, this new fact presents so much interest and importance, it shows so clearly the tie which is rising between trade and land, that it cannot be passed over in an examination of the present conditions of the latter.

No other country probably produces such a multitude of different crops as France at this moment. The surface occupied by the new species of culture is not comparatively large, but their variety and peculiar destination are striking signs of the tendency of the people. The peculiarity in question does not arise from any special conditions of climate, temperature, or habits of farming; the vine and the olive are still virtually the only two plants largely grown in France which England is too cold to bring to maturity, for oranges cannot be included among French fruits, as they ripen nowhere but at Hyères, and rice is still in a state of experiment. The present diversity of agricultural products results almost solely from the marked disposition of the French to pursue new branches of manufacturing industry, and it is this disposition which has provoked the cultivation of all sorts of plants practically unknown in England, but which furnish raw material for various manufactures.

The first great impulse given to the cultivation of industrial plants in France dates from the wars of the Empire, when the absence of colonial sugar brought about the growth of beetroot to replace it. This measure, which was thought at the time to be only temporary, laid the foundation of a trade which has outlived the necessity which created it, and the cultivation of beetroot has assumed a regular and important place in the agriculture of the northern departments, producing as much as 110,000 tons of sugar in 1861, besides the alcohol, which also is largely made from the same plant. But this is no longer the sole great example of raw material supplied by the soil to the manufacturer. The area occupied by the cultivation of beet, garance, and other dye plants, mulberry groves for feeding silkworms (which must be classed in this category), tobacco, flax and hemp, colza, the new sugar sorgho, and sundry other industrial vegetables, exceeded 1,800,000 acres in 1842, and is now estimated to reach 2½ millions of acres.

The interest of this agricultural fact is not so much in the absorption of three per cent. of the cultivated surface, which timid economists say is wanted to grow meat and bread, as in the indication it furnishes of the activity of the industrial movement in France, which has found employment since the beginning of this century for such a proportion of the land of the country. It cannot seriously be said that it endangers the supply of food, the quantity of which increases with the population and with the development of cultivation; and even if it did, France would only pay for her manufacturing progress the same price as her neighbours, while the national wealth would gain more by the stimulation of industry than it would lose by the necessity of buying corn abroad in a larger proportion than at present. The simple existence of the fact is sufficient to prove that both the agriculturist and the manufacturer find their advantage in it; and as the cultivation of cereals still covers 34,300,000 acres, of which wheat alone takes 13,800,000 acres, the diminution of the corn-growing and cattle-feeding surface has not assumed a proportion which is seriously worth noticing.

The number of houses in France in 1846, the latest date to which the published accounts extend, was 7,462,545, which, on the population then existing, gave an average of about 4½ persons to each house; but as in the towns there are from 10 to 200 inhabitants per house, the average for the country districts does not probably exceed 3, so that the rural population is evidently not overcrowded.

	313,691	houses	had	only one opening
	1,805,422	„	„	two openings
	1,433,642	„	„	three „
	996,348	„	„	four „
	692,685	„	„	five „
	2,220,757	„	„	six or more openings
Total .	7,462,545			

Here the large proportion of houses with only one, two, or three openings, shows less satisfactory conditions of existence for the labouring classes. But, since 1846, there has been a very considerable improvement in this respect, and it is probable that, when the present returns are published, they will show a very superior result.

Improvement has especially been remarkable of late years in the materials of roofing for country cottages: tiles, and even slate, having replaced thatch on a large scale.

The number of doors and windows, at the same date, was 44,283,363—nearly 1¼ per head of the whole population.

France is well supplied with roads and canals. On Dec. 31, 1854, the length of roads of all kinds amounted to 400,980 miles; while the navigable canals presented a development of 2947 miles, and the navigable rivers of 5511 miles, so constituting an interior navigation of 8458 miles.

It results from these various facts and figures that the present general condition of landed property in France is satisfactory. Its value is rising; its income has tripled in seventy years; and a new tie has lately been established between the manufacturing and agricultural interests by the introduction of industrial plants on a scale which has already become considerable. The great question of the division of property has not assumed any threatening proportions, and there is every reason to believe that it will never do so. The principle of small holdings, on which the land system of France may be said to be mainly based, is certainly suited, as has already been remarked, to the character and tendency of the people; but it has great and radical disadvantages. It prevents the division of labour; it obliges the little landowner to do everything with his own hands, often without even a plough; he can profit by none of the improvements which the command of capital would place at his disposal; all he can do is to make up for the difficulties inherent to his isolated position by working eighteen hours a day, and that he does. The amount of labour he expends is prodigious, but all the advantages of association, capital, division of labour, and scientific knowledge, are lost to him. On the other hand, the system falls in with the spirit of the people; it enables the agricultural servant to better his position if he can scrape together the means of buying a bit of land, and, when he has got it, he works it so diligently and perseveringly that he manages to live on it, apparently on nothing.

The rich classes of the nation are not turned to agriculture as in England; they scarcely occupy themselves about it. Such of them as own land keep it, because, although it is comparatively a bad investment, it is safe and honourable to be a "proprietor." It is true that there has been a decided movement of late years in favour of scientific cultivation. The government is making efforts to stimulate its pursuit, and the recent agricultural exhibitions have given proof of remarkable progress in certain localities and under certain circumstances; but it is doubtful whether farming will ever become a recognised profession, and still more so, whether it will ever become a national taste. The times are forgotten when the interest of the land was so great in the eyes of the gentlemen of France that they gave it the first place in their stately motto, "The soil, the sword, and the faith."

CHAPTER VII.

COAL.

THE extraction of coal in France has existed from time immemorial, but the first official notice of it occurs in 1548, when Henry II. granted letters patent to the Seigneur de Roberval, for the monopoly of all the mines in the kingdom. Various other similar decrees occur successively down to 1783, when the first table of detailed conditions for the working of coal was drawn up. It was not, however, till 1810 that mining legislation received a definite form by the enactment in that year of the comprehensive law which still regulates the mineral industry of France.

This law divides mineral property into three classes: mines, minières, and quarries. Mines include all metals and minerals which are found in strata or masses; while minières comprehend surface deposits, pyritous and aluminous earth, and peat.

Mines can only be worked by a concession granted by the government, with the approval of the Conseil d'Etat. The concession gives the title to the mine (which constitutes a totally distinct property from the surface, and may be mortgaged separately); it fixes its limits; and it prescribes the royalty to be paid to the owner of the land.

No one can explore for mines without first obtaining either the consent of the surface proprietor or special authority from the government, which in that case fixes the value of the damage to the landowner. Landowners can explore on their own property without leave from the state, but they cannot begin to work a mine until they have obtained a concession in due form.

Every concessionnaire is bound to pay the state a fixed annual tax of 10 fr. per square kilometre (which is equal to 1*l.* 0s. 9d. per square mile), and also a floating tax, varying with the quantity and value extracted; the rate of the latter is settled every year, according to the necessities of the budget, but it cannot exceed five per cent. of the net value produced. Since the commencement of 1861, mine-owners can assure themselves for this tax for five years, on the average value of the two preceding years.

The surveillance of mines is exercised, in the name of the state, by a special corps of engineers, educated for the purpose.

The law does not contain any particular conditions relative to coal only: it applies equally to all minerals.

Coal deposits are numerous in France, but only a small number of them are fit, by their position and the quality of their products, to be worked advantageously on a large scale. The greater part of them lie in mountainous districts, which until lately have been difficult of access. Of the 62 basins which are more or less worked, including at this moment 292 different mines, at least half cannot pretend to sell to distant consumers; their sale will always necessarily remain local and limited. In fact, there are only at present sixteen basins which have hitherto been able to place their products away from home; this number will, however, be gradually increased by the creation of new channels of transport.

The coal-fields of France may be divided generally into three main districts: north, east, and south-east. The departments which are richest in coal are the Nord, Pas de Calais, Loire, Saône-et-Loire, Gard, Hérault, and Bouches-du-Rhône. The seams are, on the whole, irregular and thin. The Valenciennes coal district, for instance, which forms the prolongation of the Mons and Charleroi beds, and extends nearly to the sea, in an almost continuous band, about five miles wide, includes a large number of seams, of which only about a dozen are thick enough to be worked, and even they seldom exceed 2 ft. 4 in. The principal mines in this large district are those of Anzin, which produce a good coal, free from sulphur; Aniches, of which the products are analogous to those of Anzin; and Raimes, Fresnes, and Vieux Condé, which give a dry, anthracitous coal. The numerous new mines recently opened in the Pas-de-Calais present similar characteristics. The great basin of the Loire, on the contrary, is composed of seams which present violent irregularities of form and thickness, rising suddenly to 50 feet, and then running out a little farther on. The ordinary thickness of the seams worked in the Loire country varies from 3 to 18 feet; they lie almost everywhere close to the surface, and are worked at a considerable number of separate spots. The coal breaks easily, and nearly two-thirds of the whole yield is in small coal, of which a large proportion is made into coke. The important manufacturing towns of St. Etienne and River de Gier are respectively the centres of the two districts into which the Loire basin is divided.

These two examples present the extremes of thickness worked; the other deposits are generally thin, with the exception of Creusot and Blanzy, where they run above the average.

It will be seen by the figures given hereafter that the development of the production of coal in

France dates from 1825—that is to say, it has been simultaneous with the extension of the iron trade. Until about 1822, French iron was almost exclusively manufactured with wood charcoal, but in that year coal began to be used in the Nivernais for smelting ore. Since that period the consumption of coal by the iron-works has regularly and rapidly increased; all the great forges put up during the last thirty years have been established in the neighbourhood of coal mines, so as to economise transport on their fuel.

The use of coal for domestic purposes is more recent still, and is even now far from general; it is only the inhabitants of Paris, and of some other large towns, who employ it on a large scale, though still mixing it with wood, which gives less warmth, but a brighter and more cheery fire.

The employment of gas in France is also a creation of the last thirty years. These facts explain why the demand for coal remained so limited during the first quarter of the century.

The products of the French mines consist of coal proper, anthracite, and lignite. Anthracite is found in the Calvados, Isère, Mayenne, Nord, and Sarthe; while lignite exists in the Bouches-du-Rhône, Isère, Haute-Saône, and Vaucluse. All the other basins produce coal exclusively.

The official reports on the coal trade are published every five years: 1859 is at present the latest date to which they extend; more recent information on points of detail is not, therefore, to be obtained.

In 1859 the proportions raised of the three classes of fuel were as follows:*

		Tons.	Per Cent.
Anthracite		688,576	9
Lignite		212,145	3
Hard short-flamed coal	953,006	6,581,850	88
Good forge coal	345,866		
Good long-flamed coal	3,066,884		
Poor coal	2,216,094		
Total		7,482,571	100

The proportions of anthracite and lignite are diminishing, while that of coal is correspondingly increasing; the latter formed only 82 per cent. of the whole yield in 1852.

The quantity of coal of all kinds raised annually has progressed as follows:

	Tons.
1787	215,000
1815	881,600
1825	1,491,300
1835	2,506,400
1844	3,782,700
1850	4,433,567
1852	4,903,922
1853	5,937,985
1856	7,925,700
1857	7,901,756
1859	7,482,571
1860	8,039,168
1861	8,400,000†

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* Statistique de l'Industrie Minérale, p. 43, 1861.

† Exposé de la Situation de l'Empire, January 28, 1862.

The 7,482,571 tons raised in 1859 were divided in the following proportions between the different basins:

	Tons.
Loire	2,036,277
Valenciennes	2,025,912
Alais (Gard)	855,839
Creusot and Blanzy (Saône-et-Loire) . .	464,496
Commentry (Allier)	421,547
Aubin (Aveyron)	322,891
The small basins	1,355,609
Total	7,482,571

But the production of 1861, which is the highest yet attained in France, is insufficient for the wants of the country; a large importation is necessary to supply the balance. The quantity of coal imported is equal to more than half the national yield, and, like the latter, it is constantly rising. On the average, from 1827 to 1836, it was 658,000 tons per annum, while in 1858 it amounted to 4,543,600 tons, and in 1861 to 5,263,406 tons. Belgium alone supplies more than half the quantity. Since 1850 the proportions received from each of the importing countries have been as follows:

	Belgium. — Tons.	England. — Tons.	Germany. — Tons.	Other Countries. — Tons.	Total. — Tons.
1850 .	1,707,000	520,400	192,200	...	2,419,600
1855 .	3,214,171	881,339	855,002	170	4,952,214
1861 .	2,948,557	1,444,846	856,422	13,582	5,263,407

This table shows that while the whole importation has more than doubled during the last eleven years, the share of it which comes from England has nearly tripled in the same period; the quantity sent by Belgium, notwithstanding its advantages of position, has not risen in the same proportion.

It follows from the preceding figures that, with a home yield of 8,400,000 tons, and an importation of 5,263,407 tons, the whole stock of coal in 1861 amounted to 13,663,407 tons. The exportation probably reached about 200,000 tons (its exact rate is not yet published), consequently the stock for interior consumption stood at about 13,460,000 tons.

The nature of the employment of coal in France is carefully watched by the government engineers; the detail of it is given in the statistics for 1858. The following comparison between the division of uses in that year and in 1852 affords an excellent indication of the relative progress of each of the great branches of consumption:

	1852. Tons.	1858. Tons.
For mines and quarries	337,770	489,260
For metal works, forges, manufactories, and gas-works	5,353,830	8,968,200
For railways, steamers, &c.	664,820	1,423,670
For domestic uses	1,602,100	2,011,900
Total	7,958,520	12,893,030

Therefore, in the six years between 1852 and

1858 the consumption for manufactories has gone up 67 per cent., while the fuel used for steam transports has increased 214 per cent.

But, notwithstanding this apparently rapid rise, the use of coal in France is singularly backward, as compared with its employment in other countries. The total annual production of coal in the world is about 130,000,000 of tons, of which England alone raises one-half. The proportions of the yield and consumption in 1858 in the five great coal countries show how far behind the others France still is:[*]

Great Britain.	Belgium.	Prussia.	United States.	France.
Population in 1858 in round numbers.				
29,000,000	4,600,000	17,800,000	28,000,000	36,000,000
Production of Coal.				
Tons.	Tons.	Tons.	Tons.	Tons.
66,048,787	8,925,714	10,417,296	14,920,996	7,352,567
Consumption of Coal.				
59,414,832	5,042,003	9,418,296	14,920,996	12,893,030
Production per head.				
2.27	1.94	0.58	0.53	0.20
Consumption per head.				
2.05	1.09	0.53	0.53	0.35

Consequently, in 1858, the production of France, calculated per head on the population, was one-eleventh of that of England, and about one-tenth of that of Belgium; while its consumption per head was about one-sixth of that of

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[*] Annales des Mines, vol. xv. p. 584, 1859.

England, and about one-third of that of Belgium. And yet the surface of Belgium is only one-seventeenth of that of France.

The details of the geographical distribution of consumption in the 86 departments are curious. In 1852, 36 departments used French coal exclusively; but in 1858 only 29 of them continued to be entirely supplied by home-raised coal. In 1852, 39 departments took both French and foreign coal; but in 1858 the number which received a mixed supply had risen to 48. In 1852, 11 departments used foreign coal alone, while in 1858 the number was reduced to 9.

Three departments alone, the Nord, Loire, and Seine, absorb nearly one-third of the whole supply. In 1858, the Nord, which, as the great centre of manufacture, is by far the largest consumer (its wants amounting to a sixth of the entire stock), took 2,224,540 tons, of which 1,293,390 tons came in from Belgium; the Loire took 879,830 tons, entirely composed of French coal; while the Seine took 1,087,280 tons, of which 802,230 tons arrived from Belgium, 38,720 from Prussia, and 38,830 from England. The Seine Inférieure took only 5970 tons from France, while 66,250 tons came to it from Germany, and 371,820 tons from England. The Gironde received 32,610 tons of home-raised coal, and 166,840 tons of English coal. Of the 9 frontier departments which used foreign coal alone, England had the exclusive trade of 7, while the Meurthe depended on Germany, and the Ardennes on Belgium.

Of the 48 departments which received a mixed supply, 42 were more or less tributary to English coal.

These great differences in the origin of the coal used are natural enough; it is only necessary to look at the map of France to see that they result forcedly from the position of each department with reference to the facilities of transport which it enjoys. It is probable that the successive extension of railways will gradually modify them, and that though they will doubtless always continue to exist in some degree, their proportions will materially change.

The question of carriage in so large a country as France, where the distances alone constitute a difficulty for trade, is a most important one for the consumers of all raw material, but it applies with special force to coal. The government has directed its attention more or less regularly since the commencement of this century to the means of cheapening transport. In 1836 the first practical step was made in that direction by the classification and reduction of the taxes on inland navigation, which up to that time had been levied in irregular and often ruinous proportions. The present government has continued to pursue the solution of the question, for it became doubly important in the face of the rapid development of trade which followed the construction of railways and the establishment of the Empire. Since 1852 the construction of ordinary roads has been actively pushed in several mining districts; at the beginning of 1861 the navigation dues were still further reduced, and certain canals were even bought by the state in order to acquire the power of lowering the tariffs. The details of the general plan proposed for the improvement of coal transport in particular are contained in a report which was presented to the Emperor by the Minister of Public Works in February, 1860.* This report indicates the measures to be taken to create new means of transport and improve old ones, and it enumerates the various roads, canals, and branch railways which are wanted in order to place each coal basin in a good position for production and sale.

But before the report was published, and while the state was still examining the question, it had become complicated by disputes between producers and carriers, and especially between the coal-owners and the railways. In a petition presented to the Senate in 1858 by the coal and barge owners jointly,† they complained that while, on the one hand, the cost of canal carriage was exaggerated by the taxes which, though reduced, were still imposed on inland navigation, the railways, on the other hand, made an unfair use of the high tariffs which they are allowed to charge in virtue of concessions granted them for the most part before the coal trade had assumed its present importance. They alleged that the railways neglected no opportunity of buying up the canals, and of crushing competition by a temporary reduction of prices, returning again to high rates directly they had got rid of a rival. They stated, furthermore, that the railways, especially the Chemin du Nord, while accepting reduced tariffs for the carriage of Belgian, Prussian, and English coal, in order to beat the canals, maintained their full rates against the French coal-owners.

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* *Moniteur*, February 28, 1860.

† Pétition du syndicat de la Batellerie et du Comité des Houillères. De la réduction des droits imposés à la navigation intérieure (par le Comité des Houillères Françaises).

This petition is full of inaccuracies, but it is not necessary to refute them here, because they only relate indirectly to the subject. The point to establish is that in 1858 the coal-owners declared in a public petition, put forward by their united committee, that they were being ruined by the railways, and that they called on the state to protect them by a further reduction of the canal dues, and by the suppression of the conditional tariffs adopted by the railways.

Now, it might be supposed that when a whole body of traders came forward with such allegations and such demands, it was because there was a serious foundation for their complaints. It might also be supposed that with a constantly increasing production of coal and a simultaneous development of the means of transport (the length of railways in France had risen 150 per cent. in the preceding eight years), the sale price of coal at the pits had considerably diminished, and that it was because their profits were falling that the mine-owners called on the state for help.

But the exact contrary was the fact. The position of the coal-owners had never been so brilliant, their profits had never been so large, as in 1858, when they put in this petition. The government taxes on coal, which are based on the price at the pit, furnish official proof of the fluctuations of value. They show that in 1847 the mean price for all the mines of France came out at 6s. 7d. per ton; in 1848 and 1849 it rose to 8s. 10d.; from 1850 to 1852 it stood at about 7s. 10d.; while in 1859 it amounted to 10s. 1d. These figures, being averages, do not represent the variations which naturally existed between the prices of different pits; for instance, in 1851 some of the mines of the Haut-Rhin sold their coals on the spot as high as 1*l.* 4s., while in the Aveyron the rate was only 4s. 4d. These are the two extremes. In the three principal basins the prices for 1851 were as follows: Loire, 6s. 10d.; Nord, 9s.; and Gard, 5s. 8d. But without stopping at these details. the singular fact comes out that the mean price of coal at the pit got up, for all France, from 6s. 7d. in 1847 to 10s. 1d. in 1859, so that as the production rose in the same period from 5,153,204 to 7,482,571 tons, an increase of sale of 45 per cent. was accompanied by an increase of price of 53 per cent., though, as all French engineers acknowledge, the cost of extraction had materially diminished in the interval, and the price of labour had risen very slightly.*

These were the real circumstances under which the French coal-owners called on the state to damage the railways for their benefit.

The report just quoted of the Minister of Public Works alludes to the rise which has taken place in the price of coal at the pit, and even argues thereon as a further proof of the necessity for creating facilities of carriage, but it does not examine the cause of the rise; on the contrary, it says that "it is not necessary to examine them here." It seems strange that while the declared object of the government is to reduce the price of coal, the causes of this extraordinary increase of its value should have been passed over in silence in an official document of which the professed purport is to indicate the remedy for that increase.

When the French coal-owners are asked how it is that their prices are so much higher than those of other countries, they reply that coal costs necessarily more to raise in France than in England for instance, because their seams are generally thin and disadvantageous to work; because, from the high price of iron, their tools are dear; because they have a royalty to pay to the state; and because they are put to expense by the interference of the government engineers in the details of their trade. There is a certain amount of truth in these explanations, but the effect of such circumstances is really very limited, and they are utterly insufficient to account for a rise of 3s. 6d. per ton since 1847, or to show how, while 6s. 7d. was a sufficient price in that year, coal could not be sold under 10s. 1d. in 1859. While French coal averaged the latter rate from 1857 to 1859, the English mean price in 1858 (according to official documents quoted in the *Journal des Economistes* for June, 1861) was 5s. 2d., or just half the French price. No one can pretend that such a difference as this was produced by insignificant variations in the conditions of extraction. The real source of the present disproportion of price between England and France, and of the rise since 1847, is found elsewhere, and it is the very petition of the coal and canal owners which, instead of helping them, has had the effect of directing attention to their real position.

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* Statistique de l'Industrie Minérale; introduction, p. 25, 1861.

The official figures prove that so far from crushing the canals, the opening of railways has largely increased their traffic. Before railways existed in France, the price of transport of coal by the rivers and canals varied from ½d. to ¾d. per ton per mile. These rates, which included the tax to the state, left a fair profit to the bargemen. The railways, on their first establishment, began to carry coal at from 1d. to 1½d., so that at that time they in no way competed with the boat interest; it is only during the last few years, since the coal traffic has become an important item of their receipts, and their means of transport have improved by experience, that they have been able to reduce their tariffs. The Chemin du Nord now charges ½d. to all comers for distances not less than 180 miles, while the other lines are all dearer, the average being about ¾d. for long and short distances together. All that the railways have done is, therefore, to come down by differential tariffs for long distances to about the old canal price, so that there is really no damage done to the bargemen at all. But even if it were shown that the price now earned for water carriage is less than it used to be, there is compensation in the increase of traffic. For example, in 1850 the whole importation of Belgian coal was 1,707,000 tons, of which part was carried by railway and part by canal; but in 1857 the canals alone brought in 1,724,000 tons from Mons and Charleroi, while the Chemin de Fer du Nord transported only 575,000 tons from the same sources; so that in that year, which presents the same average as the preceding ones, inland navigation obtained nearly three-fourths of the Belgian traffic.* A stronger example still of the recent extension of canal carriage is, that the amount of the navigation tax rose from 200,000*l.* in 1838 to 416,000*l.* in 1853, and this augmentation, which proves a proportionate increase of traffic, took place almost exclusively on the canals alone, for they paid the state 103,000*l.* in 1838, and 296,000*l.* in 1853. Transports by water have therefore doubled since the construction of railways; the railways have created so large a trade that the canals profit by the general impulse. The only advantage of the railways over the canals is that they carry regularly in all seasons, while the canals are stopped in winter by frost and in summer for cleaning. The railways offer a certainty of arrival which did not previously exist; and one of the first results of the Chemin du Nord was to put an end to the rise of fifty or sixty per cent., which formerly took place on coal every winter in Paris as soon as the canals were frozen, and which cost the Parisians some 200,000*l.* a year.

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* La Batellerie, les Charbonnages Français, et les Chemins de Fer, p. 15, 1858.

It is therefore evident, that while the establishment of railways has greatly developed the coal trade, it has done no harm to the canals, for the lowest railway tariffs only just reach the old canal rates. It was not because they were really damaged that the bargemen were put forward by the coal-owners as sufferers deserving of public sympathy, but because they hoped to distract attention from the growing price of coal by a combined attack against the so-called railway monopoly, whose first victims they professed to be.

The complaints of the coal-owners are, if possible, even less founded than those of the canal men. While petitioning for reductions of the cost of carriage, while their sale price was rising, and while their success was so great and universal that the 20*l.* shares of the new mines just opened in the Pas-de-Calais were selling at 50*l.* to 100*l.*, the country was paying 1s. 5½d. per ton duty on the foreign coal needed to make up the supply. And the duty was not the only source of protection; Belgian coal, which is the great rival of the northern French miners, paid, in addition, 1s. 8d. more for various expenses of carriage to the French frontier, so that the margin in favour of French coal was 3s. 1½d. per ton, which constituted just so much extra profit for France. It is obvious that if the Belgians, who work the very same seams as the northern French, can sell their coal at a profit in France with 3s. 1½d. extra expenses thereon, the French coal-owners, who sell at the same price and raise their coal at almost the same cost, put into their pockets not only the same first profit as the Belgians, but this 3s. 1½d. also. The home production being insufficient for the demand, and two-fifths of the whole consumption being imported under duty with special charges for carriage, it follows that, as these additional expenses cannot be suppressed on foreign coal, its price cannot be diminished. So long, therefore, as the French coal-owners keep their supply under the demand, so long will the present price be kept up, not only for the foreign sellers, but for the home producers also. The interest of the French coal proprietors is to maintain this standard, and it is fair to suppose that they are doing so resolutely and by agreement between themselves, for otherwise, having a certainty of sale, they would increase their own production and lower their prices against foreigners and each other.

In their eagerness for protection, not only by duties on foreign importation, but also by reductions on the tariffs of transport, they forget that they upset the great protectionist argument that high import duties enable a country to produce in safety enough for its own wants: in this case the only effect of the coal duty has been to add

1s. 5½d. to the price, and that for the sole benefit of the coal-owner.

It has just been stated that the railway tariff for coal has gone down during the last twelve years from 1½d. to an average of ¾d. per ton per mile, but instead of producing a corresponding reduction in the cost of coal delivered to consumers, the returns prove that the average of the latter has actually increased from 17s. 3d. in 1847 to 19s. 5d. in 1858; and this is not a private calculation, the figures are given by the government engineers in their successive reports. This augmentation of 12½ per cent. may, perhaps, have proceeded from increasing demand, or from some other cause which is not yet traceable, but it certainly in no way arose from the simultaneous rise at the pit's mouth. That rise, as will be understood from the foregoing statements, has taken place simultaneously with the economy realised in the cost of railway carriage, and it represents almost exactly the amount of that economy, for as all the coal of France is transported to a general mean distance of sixty miles, it follows that the saving of ¾d. per ton per mile which has been effected during the last twelve years, amounts to 3s. 9d., a figure almost identical with the addition of 3s. 6d., which has been simultaneously and progressively made to the old pit price of 1847. This 3s. 9d., instead of being a gain to the public, has been tranquilly pocketed by the coal-owners, who thought that their buyers might just as well pay the same price as before for coal delivered, and so added the value of the reduction, as it arose, to their own price at the mine.

The truth is, that every successive economy in the cost of transport has been accompanied down to 1859 by a successive corresponding addition to the price at the pit, and this is the explanation of the fact that while that price was 6s. 7d. in 1847 it was 10s. 1d. in 1859.

And it was under such circumstances as these, with a production purposely kept down to only three-fifths of the quantity consumed, a price just double that paid in England, a high protective duty, and gigantic profits, that the coal-owners complained in 1858 that the railway monopoly limited their sale!

Since 1859 the price has gone down again: in 1861 it stood at 8s. 1d.,* and this very fact is the best proof that could be given of the artificial nature of the previous rise.

The French coal-owners are protected from foreign competition by the simple fact that, with the exception of certain frontier departments, which are far distant from the inland coal-fields, and which are, therefore, obliged to supply themselves from abroad, the cost of carriage alone on so bulky an article augments its price sufficiently to cover the home producers. The maintenance of a duty has only the effect of correspondingly increasing the price at which French coal can be sold: the country pays 300,000*l.* a year in duties on foreign coal solely to enable the French producers to realise as much additional profit.

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* Exposé de la Situation de l'Empire, 1862.

If from war, or any other cause, the supply of foreign coal were to be cut off, the price of French coal would double or triple; it would not be pleasant for the country at large, but what a fortune the coal-owners would make!

CHAPTER VIII.

IRON.

The development of the French iron trade during the last forty years is one of the striking features of the industrial history of the century.

With the single exception of the Creusot works, which were established in 1783 on a joint deposit of both iron and coal, and where coke has always been used as fuel,* iron was, until 1821, exclusively smelted in France with wood charcoal. This system of manufacture was natural enough in a country which even now possesses twenty-one millions of acres of forest, offering an almost inexhaustible supply of charcoal, where until a very recent date the use of coal was virtually unknown, and where iron ores, though abundantly distributed over the surface, are rarely found in the neighbourhood of coal-fields. The iron trade, when it first came into existence centuries ago, was therefore based on wood fuel alone, and all the old works were put up close to forests. But the gradual rise in the price of charcoal, partly in consequence of the progressing demand for it, and partly from the constantly increasing rigour with which the sales of state and communal timber are conducted by the government officials; the growing necessity for a cheap and abundant production of metal; the augmentation of the yield of coal; and, more than all, the encouraging example of England, have brought about, since 1821, the general establishment of coal and coke iron works.

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* Patria, vol. i. p. 725.

In 1821, which date may be taken as the point of departure of the present state of the trade, there existed in France 348 charcoal works, which produced in that year 183,700 tons of iron (pig and bar together), and 2 coke works producing 3000 tons. But in 1861 the proportions had become so radically changed, that while the make of charcoal iron, of both classes, had got up to 507,000 tons, that of coal and coke iron had risen from 3000 to 1,053,700 tons.* The creation of this totally new industry is the work of the last forty years; its effect has been not only to multiply eightfold the total production of 1821, but to reduce the price by two-thirds, so enabling France to begin to compete with England in parts of the European market. It certainly may be classed among the most important results which French trade has attained since the Restoration.

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* Exposé de la Situation de l'Empire, 1862.

This immense progress has not, however, been effected without damaging the old charcoal trade, which the French regard, with reason, as a peculiar national industry, and which they desire to maintain in full vigour, not only for its historical interest, but because of the particular excellence of its products. It is true that its yield has more than doubled since 1821, notwithstanding the competition of the cheaper and inferior coal-made iron, but its prices have been cut down one-half, and a certain number of the older establishments, which were too far removed from the raw material or from the new centres of consumption which have sprung up, have been entirely ruined. But by the introduction of new processes and better administration, considerable economies have been simultaneously effected in the cost of production. The most important saving obtained is in the quantity of charcoal employed, which has been reduced since 1815 from 30 to 22 cwt. per ton of pig manufactured: this diminution, calculated on the present average prices of wood, represents about 1*l*. 5s. It is generally thought that further improvements will continue to be introduced, and that the charcoal iron trade, though so hardly pressed and so much surpassed in importance by its younger rival, will be able to hold its ground.

The charcoal forges of the Champagne country have, however, almost entirely ceased to use wood fuel for making bar; they have compromised the difficulty by meeting it half way; they continue to manufacture their pig exclusively with charcoal, but they convert it into bar with coal. The introduction of this system has divided the trade and its products into three classes: the pure charcoal iron, which is principally made in Franche-Comté, though a good deal comes also from other provinces; the mixed-fuel iron, which comes from the Haute-Marne and other departments of Champagne; and the coal and coke iron, which may be said to be manufactured all over France wherever coal is found.

The trade in all its branches is not carried on under favourable circumstances, as compared with England or Belgium. The laws which regulate it are onerous and restrictive. No iron-master is allowed to become possessor of mines for his own exclusive use; all he has is a preferential right to draw ore from the neighbourhood, and anybody else may put up works alongside him and use the same mineral. Furthermore, since the law of 1810, no iron-master can acquire coal mines. The object of this singular legislation is to prevent monopoly or coalition of interests, and to give the public the benefit of the competition which the obligatory division of mineral property was expected to produce. The result is, of course, identically the contrary. Although the average price of iron ore is lower in France than in England, especially in consideration of its generally superior quality, it and the coal to work it are bought by the French iron-masters at prices which include not only royalties to the state and the landowner, but also a profit to the seller. Ores and coal are regarded in France rather as merchandise than as raw material, and the price of manufactured iron includes everywhere, with the unimportant exception of a few of the older works which possessed mines of their own before 1810, the two first profits of the dealers in this merchandise plus that of the iron-master himself. Coal at the pit costs in France about twice as much as in England, not because it is worth that difference, but because, as was shown in the preceding chapter, the coal-owners are masters of the market and fix their own prices.

The transport of coal and ore is another heavy charge; indeed, many French iron-masters assert that their expenses for coal and carriage alone amount to 5*l.* 15s. per ton of iron produced, which is as much as the present sale price of Welsh bar.* But the cost of carriage per mile is really lower in France than in England. The reports of the engineers sent over by the French government to examine the question prove that beyond doubt; and the reason why the French pay more for carriage is that their distances are so much more considerable, and that, notwithstanding their great administrative ability, their arrangements for loading, unloading, and shifting, are less economical than in England. This question of transports, so important for a trade which employs such heavy raw material, is aggravated by the circumstance that the ironmasters can do nothing to help themselves in the matter. The power of cheapening local carriage by the construction of private roads or railways may be said not to exist, for they can only be established on the same conditions as apply to ordinary public works. No one can make himself a branch line, even on his own land, without first obtaining a regular concession, with all its formalities and responsibilities; and when it is got, the railway must be constructed and worked under the direct supervision of the government engineers, who have the right to alter the plans. Even the use of water power is almost as costly as steam, from the endless restrictions and charges attached to its employment. Another burden occurs in the heavy direct taxation imposed on all manufacturers, not only on their buildings and establishments, but also on the very right to trade. No industry can be carried on in France without a patent or certificate of permission, the cost of which rises in proportion with the nature and importance of the business. Some of the large iron firms pay from 4000*l.* to 8000*l.* a year in taxes on their special position as manufacturers. It is true that the income tax presses almost equally heavily on many English firms, but that is a general charge which they support in common with every one else, while the French law levies payments on the particular occupation pursued.

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* Enquête sur le Traité de Commerce, vol. ii. p. 640.

It is not surprising that with such a string of difficulties and charges on their back, and especially with the high price of coal, the French iron-masters should bring out their products at a higher price than in England; the rapid progress of the trade, in the face of these numerous obstacles, is all the more creditable and remarkable; it adds another proof to those already existing of the industrial capacity of the French, and it shows how great their manufacturing success would be if they were not kept down and fettered by government control.

As a compensation for all these special disadvantages, the French coal iron trade has had one great advantage: it was established with the example of England to guide it from the beginning; it was able to start under the best known conditions of arrangement and direction; time and money were not wasted in trials; and the machinery put up at the very outset was of the best workmanship and great force.

In 1820 ordinary charcoal iron sold at 24*l.* per ton; in 1835 it was only worth 16*l.*, while coal-made bar fetched 12*l.* At this moment the charcoal forges cannot get more than 10*l.*; while Creusot, which is at the head of the coal branch of the trade, is selling at 8*l.* The average retail price of coal bar iron in all France is about 9*l.* 5s. The total diminution of price during the last forty years is therefore equal to more than 60 per cent., while the production has increased sevenfold in the same period.

The official returns of the quantities and values produced in 1861, are as follows:

				Per ton.		
Pig iron:						
Charcoal . . .	398,000	tons, worth	£1,876,000 =	£4	14	3
Coal and coke .	590,000	„ „	2,580,000 =	4	7	5
Total . . .	988,000	„ „	£4,456,000 =	£4	10	2
Wrought iron:						
Charcoal . . .	109,000	„ „	£1,668,000 =	£15	6	0
Coal and coke .	463,700	„ „	4,600,000 =	9	18	4
Total . . .	572,700	„ „	£6,268,000 =	£10	18	10

It results from this table that more than a third of the pig and about a fifth of the wrought iron are still made with charcoal; and that the total make of both kinds amounted in 1861 to 1,560,700 tons, worth 10,724,000*l.* The fall of price, as compared with preceding years, is most remarkable. In 1859, only two years before, the make was 1,382,250 tons, worth 11,626,340*l.* It is particularly in the charcoal pig and the coal bar that the reduction since that date has taken place; the former has fallen from 6*l.* 7s. 2d. to 4*l.* 14s. 3d., and the latter from 12*l.* 9s. 4d. to 9*l.* 18s. 4d. It should also be observed that the above mean rates for wrought iron include the proportionate cost of plates, girders, and all the other more expensive classes of iron. The actual wholesale prices of ordinary bar do not exceed, as have just been said, 10*l.* for charcoal iron, and 8*l.* to 8*l.* 10s. for coal iron.

It is extremely difficult to give any reliable details of the present cost of manufacture without going into private calculations, which, after all, would have no real value. The only official figures recently published on the subject are contained in the evidence taken before the committee appointed to fix the duties under the commercial treaty with England; but no confidence can be placed in them, because they were given by the iron-masters themselves, with the natural intention of exaggerating cost, in order to obtain the highest possible protective duty. As, however, they offer the only information bearing on the matter which has appeared of late years, it is worth while to quote them, but with the express reserve that they can only be regarded as illustrative.

The iron-makers of the Haute-Marne gave their cost as follows for the manufacture of pig with charcoal and its conversion into bar with coal:*

Ore—3 tons at 6s. 8d.	£1	0	0
Labour and general expenses	1	1	0
Charcoal	3	15	0
Cost of 1 ton of pig	£5	16	0

To turn this pig into bar, the further expenses are:

1 ton 6 cwt. of pig at 5*l.* 18s. 6d., delivered at the forge	£7	14	0
Labour and general expenses	2	10	0
1 ton 6 cwt. of coal at 1*l.* 6s.	1	14	0
Cost of 1 ton of bar	£11	18	0

For Franche-Comté, which is exclusively a wood-fuel country, and where charcoal alone is used both for pig and bar, the details were given as follows:

Ore—4 tons at 11s. 3d.	£2	5	0
Labour and general expenses	1	4	0
Charcoal	3	17	0
Cost of 1 ton of pig	£7	6	0
1 ton 7 cwt. of pig, at 8*l.* at the forge	£10	16	0
Labour and general expenses	2	0	0
Charcoal	4	0	0
Cost of 1 ton of bar	£16	16	0

Both these accounts, especially the latter, are evidently swollen, for with such a cost of production compared with present sale prices all the works in France would be hopelessly ruined in six months. In contradiction with both, M. Eugène Flachat, one of the first engineers of France, declared to the same committee, in evidence which presents the most complete and lucid statement which has ever been published of the nature of the difficulties with which the iron trade has to struggle, that charcoal pig can be manufactured for 4*l.* 12s. It should, however, be remarked that the wood-fuel iron-makers are obliged to keep a large amount of capital unproductive in consequence of the heavy stocks of charcoal which they have to maintain, and that this constitutes a serious charge for interest, and so increases the amount of general expenses.

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* Enquête sur le Traité de Commerce, vol. i. p. 142.

The cost prices of coal and coke iron were not presented to the committee with the same professed exactness as those of charcoal iron. Besides, they vary materially with the locality and with the distances of carriage on ore and coal. For instance, M. de Wendel raises ore at Hayange (Moselle) which costs him 3s. 8d. per ton, and he mixes it with Nassau ore, which is worth 1*l.* 3s. At Creusot the coal does not probably stand at a higher price than 7s., while certain forges of the Haut-Rhin pay 1*l.* 10s. for it. The only statement offered to the committee of the cost of coal-made pig was put in by M. Pinard, of Marquise, near Boulogne; his figures are as follows:

Ore—3 tons, at 8s.	£1	4	0
Labour	0	8	0
General expenses	0	16	0
Coal—2½ tons, at 19s.	2	7	6
Cost of 1 ton of pig	£4	15	6

The real figure is probably somewhere about 4*l.* 8s.

Before the recent commercial treaties with England and Belgium the duties on the importation of foreign iron into France were—on pig, 1*l.* 18s. 5d. per ton; and on wrought iron, from 4*l.* 10s. to 6*l.* 14s. 3d., according to the class. For some years the customs returns had indicated the introduction of only imperceptible quantities of wrought iron, and showed that the importation of pig was steadily diminishing. The sale of foreign pig was, indeed, almost entirely limited to the north-western and Channel coast districts; in the interior it was scarcely used at all, excepting to give softness and liquidity to certain hard French pigs with which it was mixed. The first cause of this diminution was the constant increase of the French make, combined with a corresponding reduction of price; but another important motive was the rapid augmentation which has occurred in the importation of Belgian ore, which has latterly been supplied at low rates to the ironworks in the north of France, so enabling them to produce pig cheaper than with their own mineral. While the annual deliveries of foreign pig fell from 100,000 to 60,000 tons in the three years ending 1858, the importation of Belgian ore rose from 58,000 tons in 1857 to 118,000 tons in 1859.

This was the state of the case when the new treaty came into force on the 1st of October, 1860. The duties applied under it are 1*l.* on pig, and 2*l.* 16s. on wrought iron of all kinds, the only distinction of class being for very thin sheets or very heavy plates, which latter pay 3*l.* 16s. The present tariff presents, therefore, about half the former rates.

During the first six months of 1860, under the old law, France paid duty on 13,677 tons of foreign pig, and on 173 tons of wrought iron, while on the whole year 1861, with the new tariff in force, the quantities which were paid on amounted to 117,558 tons of pig (of which 98,198 tons came from Great Britain, and 27,779 from Belgium), and 11,228 tons of wrought iron. Both categories, but especially the latter, have therefore largely advanced under the influence of the reduced duties.

The returns of previous years had already shown that there is a wide practical difference in the disposition to import the two classes of iron, for while pig comes in in large quantities, wrought iron appears to be scarcely imported at all; the figures of 1861 bring out this fact more clearly still. The distinction, as will presently be seen, is not so absolute as it looks at first sight, but still it really exists to a marked degree; it proceeds from the circumstance that the French want pig, especially for mixing, and that they do not want bar for home consumption, their own production sufficing for their interior wants of the latter; it does not arise in any way from an excess of duty on bar comparatively with pig; on the contrary, the present difference of duty between the two is only 1*l.* 16s., while the French iron-masters calculate the difference of the cost of manufacture of pig and bar at an average of 4*l.* If the importation depended on the amount of duty alone, it is obvious that, admitting 4*l.* to be the real French margin between the two, bar could now be brought in proportionately more advantageously than pig.

The fact is that both duties are prohibitive. Taking Scotch pig at 2*l.* 15s. at Glasgow, it costs in Paris, after adding 1*l.* 12s. for carriage and 1*l.* for duty, 5*l.* 7s. per ton, while French coal pig can be got for 4*l.* 12s. Bar iron, which costs 5*l.* 15s. in Wales, costs 1*l.* 8s. for carriage, and 2*l.* 16s. for duty, making the price in Paris 9*l.* 19s., while the retail price of coal bar there is about 9*l.* 5s. It is therefore evident that England cannot sell either class of iron in the interior of France under the new tariff, and that if the importation of pig goes on it is because it is really wanted. The pig brought in is almost all Scotch, and of the cheapest quality, the high-priced English pigs finding no demand at all.

There are, however, circumstances behind the curtain which put a different face on to this question of importation.

An imperial decree of October 17, 1857, authorised the temporary introduction into France, without duty, of pig and wrought iron, steel, and copper, destined to be manufactured into engines, ships, or iron constructions of any kind, and to be re-exported within six months, the importer proving that he really requires the materials for orders under execution.

Under this decree any French iron ship or engine builder is therefore able to supply himself with iron from England or Belgium far under the prices in France, and bring it in duty free, engaging himself by a special bond, called an acquit à caution, to export the object manufactured with it, or, failing such exportation within six months, to pay the duty. The advantage thus accorded to the French machine and iron bridge makers is so great that the amount of such articles sold abroad doubled in eighteen months after the promulgation of the decree. This was its first consequence; it has had a second one, which particularly affects the conditions of the general importation of foreign iron.

There are in France several large engine builders who buy all the iron they use, and who therefore profit largely by this arrangement, which enables them to purchase it economically abroad. But there are many others who are iron-masters as well as engine-builders, and who use their own iron exclusively for all the machines, bridges, and other work which they deliver. The latter, of course, found themselves at once beaten by the former for all foreign orders, in consequence of the difference thus produced in the first cost of the iron used by each. To compensate this they invented the expedient of creating in their own favour a drawback on the exportation of their iron by selling to others the right which they possessed under the decree of importing, duty free, a weight of metal exactly equal to that of the manufactured objects which they were about to make for exportation with their own French iron. Three or four active brokers, who perceived the importance of this new traffic, constituted themselves intermediates between the manufacturers who had French iron goods to export and the dealers who had foreign iron to bring in. They bought from the former the right of importing, so producing a premium on the article exported, and they sold it to the latter at a price which, after deducting the broker's profit, has averaged for the last three years about 1*l.* 10s. per ton under the real duty.

To make the case quite clear, take the example of a French firm tendering for a Spanish railway bridge: the price would be about 20*l.* a ton for delivery at the frontier or in a port, but as, at the present value of drawback warrants, the exporter would sell the right of importing an equal weight for 1*l.* 10s. a ton, he is able to tender at 18*l.* 10s., so coming down to the price of his rivals, who manufacture the same bridge with foreign iron brought in for the purpose duty free. The difference between this 1*l.* 10s. and the duty of 2*l.* 16s. represents the value of the carriage paid by the houses who use foreign iron; the prices of the iron material used come out therefore equal in both cases. The broker who buys the right of importation at 1*l.* 10s. sells it to a dealer for 1*l.* 12s., and all that the parties have to do is to take care that the exportation takes place within six months after the importation. These figures are not absolutely exact, as will presently be observed; they are only intended to be illustrative.

The trade in these warrants is now regularly established; it offers at this moment the means of importing pig iron at about 5s. and wrought iron at from 1*l.* to 1*l.* 5s. per ton below the duty. It is openly carried on under the eyes of the government, and wrought iron may be said to be exclusively brought into France by this system; for on an article for which the demand is comparatively so small, no dealer can afford to pay the full duty, while his competitors confine themselves to the use of warrants.

While, however, it enables importers to bring in wrought iron at a duty of from 1*l.* 12s. to 1*l.* 16s., instead of the tariff rate of 2*l.* 16s., it has the double inconvenience of limiting the effective importation to a weight which cannot exceed that of French iron exported (the quantity which only passes in transit not constituting any addition to the consumption), thereby restricting the sales of English and Belgian iron to a proportion which cannot exceed that of the foreign sales of the French iron-masters; and also of presenting sudden fluctuations of rate, the price of the power to import varying with the more or less momentary activity of the exports of French iron and of the demand for warrants. In the months of June, July, and August the price always rises, because at that period the introduction of Swedish iron takes place, and creates a temporary addition to the wants of the dealers.

On the other hand, it has the merit of enabling Welsh bar to be delivered in the French Channel ports at about 8*l.* 5s., so leaving a profit to the importer against the French price of 9*l.* 5s. This advantage continues to exist almost all round the coast, from Dieppe to Bayonne, and it also presents itself, though in a less degree, because of the higher freights, in the Mediterranean ports. North of Dieppe the Belgians get in cheaper than the English, from the shortness of their carriage. No absolute line can be fixed on the inland limit of the sale of English wrought iron; but it is doubtful whether any important deliveries can ever be made as far in as Paris, the additional transport increasing the price with the distance travelled, while the cost of carriage on French iron diminishes in inverse proportion with the greater proximity to the centres of manufacture.

The practical consequences of the system of importation under acquits à caution have been, that during the first six months of 1860 the total importation of pig was 43,433 tons, of which, as has been previously said, only 13,677 tons paid duty; while the importation of wrought iron was 9958 tons, of which only 173 tons paid; the difference in each case was either really re-exported in a manufactured form, or served to counterbalance a corresponding exportation of French iron. There are no means of distinguishing between the two. For 1861 (under the new tariff) the figures are* 154,032 tons of pig, of which 117,558 paid duty; and 62,517 tons of wrought iron, of which only 11,228 paid, out of which again 6740 tons were rails. Therefore, on the results of 1861, about a quarter of the pig and about four-fifths of the wrought iron brought into France from other countries come in under this system of drawback, and exactly compensate an equal amount of exportation of French manufactured articles. The augmentation from year to year of the difference between the total quantities imported and those on which duty is really paid, affords the surest test of the rate of progress of the foreign trade of France in metallic constructions.

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* Recueil de Documents Commerciaux, No. 11, January 20, 1862, pp. 187 and 189.

While, however, these figures show that the importation of English and Belgian iron into France has been vastly increased by the reduction of the duties, it is certain that the great effect of the present tariff will not be so much to maintain the actual rate of importation as to create a maximum price for French iron, which, of course, quality for quality, and allowing for the relative distances of carriage, cannot rise higher than that at which foreign iron can be imported.

The present consumption of iron in France comes out as follows:

Production of pig in 1861	988,000	tons
Importation „ „	154,032	„
Total of pig	1,142,032	„
Production of wrought iron in 1861	572,000	„
Importation „ „	62,517	„
Total of wrought iron	634,517	„

The two items together form a total of 1,776,549 tons; the quantity exported, though not indicated in the customs returns, ought to be exactly equal to that imported under acquits à caution, which, as results from the figures already given, was, in 1861, 36,474 tons of pig, and 51,289 tons of wrought iron; giving a total of 87,763 tons. Deducting this figure from the whole quantity employed, it follows that the annual interior consumption of France is now at the rate of 1,688,786 tons. Now England produces, or rather did produce before the present crisis in the trade, about 4,000,000 tons per annum, of which 1,500,000 tons were exported, leaving 2,500,000 tons for the needs of the country. The whole real consumption of France, therefore, barely exceeds the weight exported by Great Britain, and it amounts to only three-fifths of the home wants of the latter. As the present proportion of population between the two countries is roughly as 6 to 5, it follows that the consumption per head in England is very nearly double that of France.

The manufacturing and constructing parts of the iron trade are carried on in France with great success and perfection. The more difficult classes of wrought iron are made with singular cheapness as compared with England: plates, for instance, sell in Wales and at Newcastle at from 8*l.* to 9*l.* per ton up to 4 cwt. each, while in

France they cost about 12*l.*; but this difference disappears with augmentation of size and weight, and at 8 cwt. per plate the cost is nearly the same on both sides of the water, the French having scarcely any additions of price for extra sizes, as is the custom in England. The same conditions apply with equal force to angle and T iron, of which the heavier sizes arc actually cheaper in France than in England; indeed, many of the sections now currently rolled in France are not known in this country, where they are considered too difficult: such are, for instance, the double ⌶ bars, 2 feet high and 16 feet long, made at Châtillon for 20*l.* a ton. So far from hesitating before the difficulty of manufacture of these special types, French engineers are always seeking to create new ones, in order to suppress riveting and hand labour by single pieces rolled complete to the size and shape wanted.

The reasons of this advanced state of all rolled work are, first, that the French forges certainly possess, on the whole, better and more powerful machinery than the English—their rolls and flywheels are particularly large; that they are always on the watch for new inventions and new means of production, feeling that with the high price of their raw material their prospect of success against foreign competition lies in the economies which they can introduce into their manufacture, properly so called: and, lastly, that their labour is cheaper than in England or Belgium. The latter point is a very important one. The English workman is paid more than the Frenchman, and though he is more of a machine than the other, and will spend his whole life in making the same object, so attaining great dexterity, and producing work at the lowest possible cost, while the Frenchman requires change, and aspires after promotion, still, the intelligence and quickness of the latter, added to the real economy of pay, gives a decided money advantage to France. Even as compared with the Belgians, whose wages are lower still, the French bring out their work cheaper. The Compagnie Générale des Matériels de Chemins de Fer, which has establishments at Paris and Brussels, finds that the same work costs less in France than in Belgium, notwithstanding the difference of the price of labour.

The same economy of manufacture is found in engines, locomotives, bridges, and other metallic constructions. With iron always dearer than in England or Belgium—for even allowing for the advantages of the system of temporary free admission, there is always the extra carriage to pay—the French makers can produce many sorts of work at nearly the same average prices as the English, and indeed on certain products can almost beat them. By far the greater part of the bridges, station-roofs, and locomotives which have been supplied to the railways of Europe during the last six years have been made in France; rails alone continue to be taken from England. This fact is partly explainable by the circumstance that the majority of the railways recently got up in continental Europe have been promoted by Frenchmen, with French capital, and with French engineers, who have naturally given their orders in preference to their own country, but it has arisen also from the indisputable manufacturing talent and rapid progress of the French makers. Rails, which are almost raw iron, cost at this moment about 2*l.* 10s. less in England than in France, but directly the metal is converted into a construction of any kind, the difference of first price begins to disappear; the greater the labour employed, the more the raw material is worked, the quicker do the French pull up their disadvantage at starting, and without exaggerating the advance which they have effected during the last ten years so much as to say that they can yet generally compete with England for railway plant or metallic constructions, it may be said with certainty that they are already almost able to hold their own, and that in a few years more they will probably become serious rivals to the English makers. This is rendered more likely still by the astonishingly low rates at which the Germans are now taking orders for locomotives and bridges; they have been twenty per cent. under both English and French for several recent contracts, and in their own defence the latter will do their best to still further bring down their prices. In the manufacture of spinning and weaving machinery, however, the French are still backward and dear.

The French forge work, also, is very far advanced. The engineers of their navy, who have opportunities of comparing the heavy forgings of the two countries, declare positively that they are ahead of England in machinery, workmanship, and economy.

Iron work for railway carriages, which is a growing branch of the trade, is produced in the Ardennes, where special works have been put up to make it, at prices which now average 26s. per cwt. all round, which, for such light pieces as the French use, is under the English rates, notwithstanding the extra cost of iron.

The production of steel has risen rapidly. In 1826 the total made amounted to 4915 tons; in 1859, the latest date to which official quantities are published, it reached 22,988 tons, of which 13,243 tons were forge steel, 5810 cemented, and 3915 cast.* M. Petin, of Rive de Gier, told the Tariff Committee that he alone now makes 6000 tons of steel a year. The progress has been stimulated by the numerous new applications for which steel has been used in France during the last four or five years. Not only is it employed for tires, axles, cylinders, and other heavy parts of machinery, but M. Petin is now manufacturing railway wheels entirely of cast steel, and in one piece.

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* Statistique de l'Industrie Minérale, pp. 487, 499.

The mean wholesale prices of forge steel have fallen, since 1847, from 33*l.* 7s. 6d. per ton to 26*l.*; cemented steel remaining nearly unchanged, at about 25*l.*; while cast steel has come down from 60*l.* to 42*l.*

Not only has the production of steel increased in the large proportions indicated, but it is now manufactured almost exclusively with French iron, less than 5 per cent. of the whole being made with Swedish iron. The ore which gives the French steel comes from Corsica, the Pyrenees, the Dauphiné, Perigord, and Savoy; much of it produces natural steel. All of it is smelted with charcoal.

The quality of the French steel is good: it is even alleged that their steel plates for covering ships of war perfectly resisted cannon-balls during the experiments made on them at Vincennes, while English plates brought over to test against them broke in the trial. But, notwithstanding the excellence of the quality, some of the Paris cutlers still continue to use Sheffield steel for fine work: the importations of the latter is now at the rate of 2650 tons per annum, of which about five-sixths come in under drawback. The new tariff has increased this importation by a fifth, the duty on bar steel being reduced from 14*l.* 8s. to 6*l.*

Of the minor branches of the iron trade some progress but slowly; while others have attained considerable development during the last few years. The make of iron wire is 23,000 tons per annum: such of it as is manufactured with charcoal iron is of the very best quality, as, indeed, it needs to be to withstand the tests to which it is subjected by the administration of the telegraphs, who are its largest consumers. The production of tin plate (fer-blanc) is 10,000 tons against 70,000 tons in England: in this item the French are a long way behind. In the manufacture of pins and needles, also, France is not at all advanced; here their great competitors are not the English, but the Germans; the importation amounts to 750,000,000 needles per annum, of which only one-fifth come from England, and four-fifths from Germany.

The tendency to employ iron for new applications is very marked. The use of double ⌶ girders for house floorings has not only become universal in Paris during the last six or seven years, but is spreading in the provinces in every direction. In Paris alone the consumption of iron, for building purposes, rose from 9995 tons of wrought iron and 9105 tons of castings in 1859, to 18,153 tons of wrought iron and 12,289 tons of castings in 1860.

These various details of the recent progress of the trade are remarkably instructive; they show how the innate intelligence and aptitude of the French have enabled them not only to create a totally new industry, but to carry it almost to perfection in forty years, in the face of all sorts of difficulties. With a raw material which, when coal is included, costs them far more than it does their neighbours, they have managed, by skill and good administration, to convert it into manufactured articles at prices which nearly regain the difference of first cost. This economy of handling is a better protection for them than all the duties imposed on foreign importations; and though, in order to prevent the destruction of the trade, the latter will long be necessary on pig and on the simpler forms of bar iron, which, from the price of coal and the long distances of carriage, the French can scarcely hope to ever produce as cheaply as in England, it is probable that before long they will be in a position to sell the higher classes of wrought iron, and also machinery, without any fiscal protection at all, especially if allowance is made for the exactness and admirable finish of their work.

With a tariff as it now stands, England cannot really sell in France, and if hereafter, by a further reduction of duties, the introduction of foreign iron should become possible on a larger scale (to permit which it must be supposed that French prices do not continue to fall), it will rather be the Belgians than the English who will get command of the market. Their prices are generally rather dearer than those of England, excepting for difficult forms, which, as in France, they produce with scarcely any augmentations of rate, and the quality of their metal is inferior, but they have the immense advantage of being able to execute the smallest orders immediately by railway, and of working to French weights, measures, and money, while the English, on the contrary, can only deliver in complete cargoes and roll to their own scales, which do not correspond with those of France.

CHAPTER IX.

BEET-SUGAR AND ALCOHOL.

THE existence of sugar in beetroot was discovered in 1747 by Margraff, a Prussian chemist.* He published a detailed note on the subject, indicating its agricultural and manufacturing importance; but the price of cane-sugar was then very low, the consumption was small, the disposition of the period was not in favour of industrial enterprises, and he was not able to give a practical form to his discovery.

Twenty-five years later Achard, another chemist of Berlin, took up the ideas of Margraff, and made new experiments on the production of beet-sugar. Encouraged and helped by Frederick the Great, and then stopped again by his death, Achard was not in a position to publish the results of his efforts until 1795. The book which he then printed on the question contains the most exact appreciations of the various uses for which beet has since been employed; he speaks, almost like a prophet, of the head, leaves, and pulp as food for animals; of the manure produced by this system of cattle-feeding; and of the residues of the sugar manufacture made into alcohol or vinegar. His theoretical indications have been confirmed in practice.

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* Fabrication du Sucre de Betterave, p. 51, Dureau, 1861; La Question des Sucres, Protin, 1860; Etude sur le Système Colonial, De Chazelles, 1860.

But he did not limit himself to theory only; aided by a subvention of 8000*l.* from the Prussian government, he applied his ideas on a manufacturing scale at the farm of Cunera, in Lower Silesia, where he devoted sixty acres of land to the cultivation of beet. The success of his experiments continued, and in 1799 he presented to the king the first specimens of white beet-sugar. A commission was named to examine his process; its report was very favourable; it even went so far as to assert that brown sugar could be produced at a cost price of 26*l.* per ton, which at that time, with the processes then available, was certainly impossible. The report was equally commendatory as concerned the utility for agricultural purposes of the residues of the crop and sugar. Achard even pretends that the success of his system was regarded as so certain, that the English government, frightened by the possible effects which its adoption might produce on the colonial trade of Great Britain, offered him privately a large sum to abandon its pursuit, and that he indignantly rejected the proposal.*

In 1799 the news of the discovery began to circulate in France. A letter from Achard, giving the details and cost of his process, was published in the Annals of Chemistry, and produced a great sensation. The Institute immediately named a commission to examine the matter, and shortly afterwards the Society of Agriculture of the Seine (now the Imperial Central Society of Agriculture) awarded a gold medal to Achard.†

The experiments made by this commission produced sugar at the rate of 18 cwt. from 100 tons of roots, or not quite 1 per cent. Moreover, this sugar was of such a nature that it was not possible to refine it into a crystallised form. But, notwithstanding these indifferent results, and the high price at which the commission fixed the cost of production in France—64*l.* per ton—the report, as a whole, was favourable. The moment was not, however, propitious for the establishment of a new trade, which might be destroyed in a moment by the expected conclusion of peace with England (it was just before the treaty of Amiens); only two small factories for the manufacture of beet-sugar were put up, and they were speedily closed again.

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* Dureau, p. 54.

† Revue des Deux Mondes, Nov., 1857, p. 96.

Shortly afterwards public attention was momentarily distracted from beet by the much-talked-of attempts to make sugar from grapes, and to introduce the sugar-maple and cane in the south of France. Indeed, it was natural enough that all sorts of efforts should be made to produce indigenous sugar, for war had begun again, the continental blockade had come into force, and the retail price of sugar had risen to 5s. per lb.; it had become almost a medicament, instead of an article of general consumption, and was no longer sold by the grocers, but by the druggists.

Pressed by this difficult position, Napoleon named a new commission to examine the various means of manufacturing home-made sugar; its report, drawn up by M. Deyeux in 1810, was again favourable to beet. Experiments continued, MM. Schumacker and Co. founded a factory, and at last, on January 2, 1812, M. Benjamin Delessert informed the government that he had succeeded in producing refined crystallised white beet-sugar. The Emperor instantly went to his works at Passy, warmly congratulated him, and gave him the Cross on the spot.* The next day the *Moniteur* announced that a great revolution in French trade was effected, and that date may be taken as the real starting-point of the industry which has since become so important.

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* Bulletin de la Société d'Encouragement, Feb., 1861, page 69.

The question was, however, only theoretically decided, and was not yet quite susceptible of practical application. M. Barruel, a pupil of M. Deyeux, continued to investigate it, and shortly afterwards published an account of the insufficient processes then known. He arrived at a yield of 1½ per cent. of sugar on the weight of beet worked, and at a cost price of 137*l.* per ton. But this price, the highest which had been named, is explainable by the circumstance that he bought his beet, which was grown exclusively in market-garden ground round Paris, at the excessive rate of 1*l.* 4s. per ton. Furthermore, he operated on a very small scale, and without any of the advantages which the working of a large factory affords. While, therefore, he candidly acknowledged what his sugar really cost him, he expressed the opinion that it could be produced, if the manufacture were fairly established, at 39*l.* for brown sugar, and 56*l.* for refined.

Almost simultaneously with the experiments of M. Barruel, M. Derosne, whose name is intimately associated with the history of the trade, obtained a yield of 2 per cent. It is chiefly he who has introduced, conjointly with his partner, M. Cail, the successive improvements in the system of sugar-plant which have placed the great firm of Cail and Co. among the first machinists of Europe.

Efforts made in other parts of France raised the yield to 2½ per cent., and towards the end of the same year (1812) an imperial decree prescribed the establishment of government works for the manufacture of beet-sugar. It was ordered that 100,000 acres should be immediately sown with beet, which, at the then average crop of 15 tons per acre, would give 1,500,000 tons of roots, and, at 2½ per cent. thereon, 37,500 tons of sugar per annum. Free licenses were granted to all those who had begun the manufacture, and they were exempted from taxes for four years.

This time the trade was taken up with enthusiasm; beet was sown, and sugar-works put up all over France. In 1813, 3500 tons of sugar were made in 334 factories;* but the trade was fated to encounter new difficulties and new failures: 1814 was at hand, and, as the well-known agriculturist, Mathieu de Dombasle, has since said, "The French armies entered Moscow when the beet was sown, and the Cossacks were quartered in the works when it was converted into sugar."

The peace suddenly opened the ports of France: the price of sugar fell from 5s. to 7d. per lb.; and all the beet factories, put up eighteen months before with such brilliant hopes of success, were suddenly ruined. One single establishment, that of M. Crespel Delisse, continued to hold on.

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* Statistique de l'Industrie de la France, p. 281. Moreau de Jonnès.

It looked as if the beet-sugar trade was hopelessly lost with its imperial founder, for it could not live against foreign competition. But one of the first acts of Louis XVIII. was to issue an ordonnance which, confirmed by another of 17th Dec., 1814, created a duty of 16*l.* per ton on French colonial sugar (the four colonies of Martinique, Guadaloupe, Guyane, and Bourbon, had just been restored to France), and of 40*l.* on all foreign sugar: these duties were shortly afterwards modified to 18*l.* and 38*l.* respectively. Under this relative protection the colonies began to resume the cultivation of cane, which they had abandoned during the war, and in 1816 they sent the mother country 17,000 tons of sugar. But the home beet trade profited also by these duties imposed on its rivals, and, after a good deal of hesitation, began in 1822 to show new signs of movement. In 1825 several small factories had got to work; in 1827 there were 39 in activity, producing 1218 tons of sugar; in 1828 there were 58 works, which made 2685 tons* (M. Maurice Block gives this quantity at 6665 tons,† but it appears to be an error); the yield of sugar had risen to 3 per cent., and several important improvements, which will presently be indicated, had been introduced into the manufacture.

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* Revue des Deux Mondes, Nov. 1, 1857, p. 113; Annuaire de l'Economie Politique, 1859, p. 138; and Bulletin de la Société d'Encouragement, Feb., 1861, p. 73.

† Statistique comparée de la France, vol. ii. p. 202. Block.

The resuscitation of the trade attracted, however, the attention of the colonial planters,* as well as of the maritime interest and the refiners. They combined together to attack it; the planters urged that it was the duty of the state to protect them against untaxed competition; the shipowners alleged that sugar-refining was an old national industry, which would perish if home-made white sugar got hold of the market (foreign and colonial sugar were and are only allowed to come in in the brown state, and a large premium is paid to the refiners on its re-exportation in loaves); and the refiners declared that the existence of the merchant navy depended on the transport of colonial products. The two latter classes craftily fought each other's battle, so as to make their action appear disinterested. As early as 1822, the colonists residing at Bordeaux had petitioned the government to modify the sugar tariff in their favour. The merchants of Marseilles, Nantes, and Havre had backed their complaints, and had even demanded the entire exclusion of foreign sugar until colonial sugar reached the price of 68*l.*, duty paid, instead of the then current rate of 48*l.*

The ground was, therefore, prepared for an attack against the beet trade, and under the pressure of the interests hostile to it, which grew stronger every year, the government ordered an inquiry to be made in 1828. No result was arrived at, but the beet-sugar makers were warned that a tax would eventually be levied on their products. The events of 1830 prevented the immediate execution of this project, but the agitation afterwards became more violent than ever. Meanwhile, the production, still unfettered by taxation, increased rapidly; in 1834 it reached 20,000 tons, and in 1836 it got to 40,000 tons, made by 436 factories in 37 departments. The trade had, therefore, become sufficiently considerable not only to give an appearance of justice to the complaints of its rivals, but also to tempt the government to grant their demands of a tax on indigenous sugar, because of the new branch of revenue which would thus be created.

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* Etudes sur le Système Colonial, p. 135. De Chazelles.

But the beet trade was not alone to fight its battle; influences had grown up in its favour; it was actively supported by the agricultural party; and it was not easy to conquer it. The conflict was long and bitter, but finally the colonial interest carried its object, and succeeded in passing through the Chamber a law which, promulgated on 18th July, 1837, imposed an excise duty of 6*l.* 12s. (décime included) on beet-sugar, applicable from 1st July, 1838.

This law upset the trade again; the production, which was 49,000 tons in 1838, fell to 39,000 tons in 1839, and to 22,000 tons in 1840; 166 factories were shut up, and the manufacture disappeared in 17 departments.*

The colonial party did not, however, gain much by their hardly-earned victory. The increase of their exports in 1839 was only 3000 tons, and the price of sugar did not rise. On the contrary, it fell regularly, the demand diminished at the same time, and, instead of the sudden success which they had hoped for, the colonists found themselves with heavy stocks and new difficulties. Once more the government came to their aid; an ordonnance of 21st August, 1839, diminished the duty on colonial sugar from 18*l.* to 13*l.* 4s., so constituting, with the excise of 6*l.* 12s. already imposed on beet-sugar, a difference of 11*l.* 8s. in fourteen months against the latter. It was, however, recognised that these measures were too violent, and by another law of 3rd July, 1840, the duty on colonial sugar was re-established at 18*l.*, while that on beet-sugar was carried to 10*l.*, so reducing the difference between them to 8*l.*

The question of tax being at last apparently settled, the beet trade calmed down, and once more began to develop rapidly. From 22,000 tons in 1840, the production rose to 26,000 tons in 1841, and to 33,000 tons in 1842. But the colonies were indefatigable in their jealous hostility; they complained again, and the government, wearied by this interminable dispute between the two interests, actually proposed to the Chambers, on 10th January, 1843, to settle the difficulty by the entire suppression of the beet-sugar trade, with indemnities to the persons engaged in it.

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* Dureau, p. 80.

The commission appointed to examine this singular project had the good sense to reject it. All sorts of plans were proposed and discussed, and finally the principle of an equal duty of 18*l.* was adopted by the law of 2nd July, 1843. But in order to give the home trade time to prepare for an open struggle with its colonial rival, the whole addition of 8*l.* to the excise duty then in force on beet-sugar was not applied at once; it rose at the rate of 2*l.* per annum up to 1st August, 1847, when the two duties became equal. Since that date the beet maker has had no protection whatever, excepting against foreign sugar, properly so called, which has always continued to pay a higher duty varying with quality and origin.

The remarkable vitality of the beet trade was proved by the results which followed the suppression of the differential tariff which had so far existed in its favour. In 1843 its make was 28,000 tons, and the importation of colonial sugar 83,000 tons; in 1847 the former had risen to 50,000 tons, and the latter to 88,000 tons. All the efforts of the cane interest had failed to crush the home production, and notwithstanding several vexatious laws on points of detail, especially that of 31st May, 1846, which regulated the conditions under which the excise tax was to be levied, it continued to progress, until, in 1850, it at last surpassed the amount of the colonial yield. The effects of the commotion of 1848 had naturally affected both makes, but in 1850 the quantity of beet-sugar was 62,000 tons, while that of colonial sugar was only 51,000 tons.

The beet trade was not, however, at the end of its troubles. In 1851 the duties were modified again; an entirely new system of application, based on the proportions of chemically pure sugar, was adopted, and at last beet sugar was taxed at a higher rate than colonial produce. The duties were fixed at 17*l.* 12s. on pure colonial sugar, 20*l.* on pure beet-sugar, and 24*l.* 8s. on foreign sugar. On 27th March, 1852, the tariff was altered once more to 18*l.*, 22*l.* 16s., and 25*l.* 4s. respectively. This last decree contained conditions on the subject of refining which were very disadvantageous to beet; under their influence the production fell from 66,000 tons in 1851, to 64,000 in 1852, while the importation of colonial sugar, which gained by the same clauses, jumped up to 64,000 tons. Furthermore, 30,000 tons of foreign sugar were brought in. The total stock for consumption in 1852, after deducting the quantity re-exported in a refined state, amounted to 137,000 tons, which was more than the country could absorb. During the whole year there were constantly 15,000 tons of sugar in bond,* the price of lump fell to 56*l*., and twenty factories were shut up in the single department of the Nord. The position was aggravated by the inferior quality of the two last crops of beet, which had produced a fifth less sugar than the previous average. To make it worse still, the government issued, on September 1, 1852, one of those incredible ordonnances of detail on the subject of the interior management and control of the beet-sugar works, which are peculiar to countries where the state administers everything, and which take away from the trader a large part of his liberty of action. Fortunately for the manufacturers of England they are not "administered."

In 1853 the production rose again to 73,000 tons, but the trade had received a serious shock from all these capricious changes in its fiscal conditions, and it is not surprising to find that it seized with avidity an opportunity which suddenly offered itself in that year of turning its attention in another direction.

The ordinary production of alcohol in France, before the special circumstances which are about to be mentioned, was about 14,500,000 gallons, of which 12,000,000 were made from grape, and the rest distilled from grain, potatoes, and the molasses of the sugar-works.* This quantity is calculated on the ordinary French strength, called the 3-6 of Montpellier, which corresponds to a density of 33 deg. of Cartier's areometer, English proof being 21 deg. of the same.† But the potato disease, which broke out in America in 1843, and appeared in Europe in 1845, had already diminished one of these sources of production; in 1853, the disease of the vine became so universal that the manufacture of spirit in the Montpellier country was greatly affected; and, to make the matter worse, short corn crops, and the consequent temporary prohibition of the distillation of grain, deprived the alcohol trade at the same time of its principal remaining field of supply. Under these circumstances, the price of alcohol, which had averaged 2s. per gallon from 1847 to 1851, rose to 4s. 9d. in 1852, and to 7s. 9d. in 1853.‡ When, therefore, the sugar-makers found themselves in the latter year with an overloaded market and a trade crippled by competition, they saw in the conversion of their factories into distilleries a means of suddenly escaping from their difficulties, and of realising, by the high price of alcohol, profits which sugar had ceased to offer. Almost all the sugar machinery was fit for this new destination; the only extra plant wanted were the fermenting tanks and stills, costing about 800*l.* for works able to treat 30 tons of roots per day.* A large number of sugar-works were, therefore, instantly converted into distilleries.†

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* Fabrication du Sucre de Betterave, p. 95. Dureau.

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* Distillation des Betteraves, p. 3. Payen.

† Précis de Chimie Industrielle, vol. ii. p. 444. Payen. 1859.

‡ Distillation des Betteraves, p. 2. Payen. 1855.

This change of pursuit was stimulated by another circumstance. From 1851 the price of beetroot began to rise in the north of France; it got up in 1853 and 1854 to the exceptional figure of 1*l.* 5s. This rate left no profit on the manufacture of sugar, but it permitted a gain on distillation, not only from the higher sale price of spirit, but also because the proportionate yield of alcohol is necessarily larger than that of sugar in consequence of its utilising all the uncrystallisable parts of the juice. About four-fifths of the saccharine matter can be made into alcohol, while, by the ordinary processes, only about two-thirds can be converted into sugar.‡

The result of the sudden diminution of the ordinary sources of production of alcohol and of the rush into its manufacture made by the beet-sugar trade, are shown in the following table, which gives the fluctuations, in gallons, of the quantities of each category of spirit made from 1852 to 1857:[*]

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* Chimie Industrielle, vol. ii. p. 406. Payen. 1860.

† Revue des Deux Mondes, p. 115. Nov. 1, 1857.

‡ Traité de la Distillation de l'Alcool, p. 52, Payen, 1858; and Distillation des Betteraves, p. 13.

	Beet.	Molasses.	Potatoes and grain.	Sundry substances.	Wine and lees.
1852 .	352,000	1,452,000	770,000	22,000	12,980,000
1853 .	1,452,000	4,466,000	858,000	44,000	8,712,000
1854 .	4,818,000	4,004,000	1,584,000	154,000	9,548,000
1855 .	8,888,000	1,848,000	22,000[†]	352,000	3,278,000
1856 .	7,260,000	2,464,000	4,070,000	484,000	2,574,000
1857 .	9,240,000	3,300,000	2,200,000	770,000	5,060,000

From 1852 to 1855 the production of beet spirit rose, therefore, twenty-five-fold, and as the net cost of each gallon of alcohol in the latter year, at the price to which beet had then fallen again (15s. 5d.), and with the processes then employed, was just 3s. per gallon,[‡] while the average sale price was 6s. 1d., the profit was 100 per cent.

The immense success thus obtained by the conversion of the sugar-works into distilleries was, however, only temporary. In 1857 the vine began to recover from the disease, at least sufficiently so to allow of a partial resumption of the manufacture of grape spirit, and the price fell again rapidly. The sugar-makers began, therefore, to go back to their regular trade, and their return to it was aided by the high price which sugar momentarily attained in 1857, and by the unexpected abundance and consequent cheapness of beet in that year. The sugar made in 1858 amounted to 124,000 tons, while the colonies sent in 116,000.

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[*] Statistique comparée de la France, vol. ii. p. 202. Block.

[†] The distillation of grain was prohibited in 1855.

[‡] Chimie Industrielle, vol. ii. p. 410, Payen; and Distillation des Betteraves, p. 66.

But beet alcohol had got a footing. The trade thus suddenly created has outlived the temporary necessity which called it into existence, and though most of the sugar factories returned in 1857 to their original destination, the distillation of beet established itself definitely under another form. When the sugar-makers abandoned it because the price of alcohol no longer offered them a sufficient margin of gain, the large farmers took it up in considerable numbers, profiting by the newly invented process of M. Champonois, which enables them to distil cheaply and with a small plant, and also to retain as food for their cattle not only the pulp, but also all the alimentary substances which remain in the residues of the distillation. About 250 farms now distil their own roots.

Since this rapid incursion into another field of action, the beet-sugar trade, though less active than in 1858, has gone on steadily. In 1859 it produced 111,666 tons of sugar, in 1860, 106,078 tons, and in 1861, 109,200 tons.* But its difficulties about duties have followed it pertinaciously: the tariff was again altered on June 30, 1856, and once more on August 24, 1860.† The law of the latter date is the one which is now in force. It fixes the duties (including the double décime) at 12*l.* on beet-sugar, 10*l.* 12s. on colonial sugar (which will rise to 12*l.*, on June 30, 1866), and 13*l.* 8s. on foreign sugar.

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* Recueil de Documents Commerciaux et Financiers, No. 11.

† La Question des Sucres, p. 1. Protin. 1860.

This is the last stage of the bitter conflict which French home and colonial sugar have maintained against each other for the last thirty years. From entire liberty and no taxation, beet-sugar has been successively taxed up to a higher point than cane-sugar, and still remains so, subject to an equalisation of duty five years hence, provided no new change occurs in the interval.

While the trade was struggling against these exterior difficulties, it effected a series of most important improvements in the two branches of its interior economy, the cultivation of the roots and the processes of manufacture.

The beet, which, according to Olivier de Serres, was brought from Italy to Northern Germany towards the end of the fifteenth century, and was grown there on a considerable scale as food for cattle, scarcely resembled the root which now furnishes a sixth of the sugar of the world. At first no care was given to its cultivation, but when attention became directed to its value as an industrial plant, it was remarked that its richness in saccharine matter depended on its treatment and on the nature of the soil. It was observed that too much manure increases the quantity of roots, but diminishes the proportion of crystallisable sugar which can be extracted from them. After a certain time employed in experiments, the Prussian farmers began to adopt beet instead of their customary fallows, sowing it after two corn crops, the first only of which was manured. In Silesia the suppression of the fallow after two years of wheat became universal; the consequent gain to the farmer was immediate and great. When the manufacture was resumed in France in 1822, the varieties of roots were studied with care. The seven different sorts known were tested and experimented on, and the yellow and red beets were abandoned in favour of the sweeter white Silesian variety, introduced into France by Mathieu de Dombasle,* which contains from 10 to 12 per cent. of sugar, has the shape of a pear with the point upwards, and scarcely surpasses the level of the ground, while most of the other species are longer and grow more or less above the surface, so increasing the volume of the upper part of the root, which, in every variety, contains a less proportion of sugar than the bottom. The Prussian system of intermediary cultivation was generally applied in France, and more care was taken in the details of sowing, manuring, and hoeing. The crop per acre was reduced, by a diminution in the number of roots allowed to grow, from the previous average of 15 tons to about 11 tons, but as the quality was thereby improved, the price rose from 10s. to 12s. 6d. per ton. It was found that the best soils are deep sandy clays, and that the calcareous and pure sandy lands are the worst.

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* Guide Pratique du Fabricant de Sucre, p. 191. Basset. 1861.

Notwithstanding the attention which they have paid to the subject, and the progress which they have effected, the French have not, however, yet reached the perfection which the Germans have attained in the production of good roots. The latter have now almost entirely given up manuring; they get small crops, but more sugar. While the average yield of sugar in France does not exceed 5 or 6 per cent., the Germans get 7 and 8. But this is not a result of better cultivation alone; they pick their roots before crushing them, while the French makers generally throw them all together into the rasping-mill as they arrive from the fields. The root test used in Prussia* is based on the theory that the proportion of saccharine matter rises with the specific gravity of the roots. They are, therefore, plunged successively into three different tanks filled with salt water of the respective densities of 4, 5, and 6 deg. Beaumé; the roots which float in the first tank are at once rejected as bad; those which float in the second tank form the third quality; those which float in the third tank form the second quality, while those which sink in it constitute the first class. By the aid of this simple test the Germans have arrived at extraordinary yields of sugar from picked roots; they have a special interest in obtaining the richest possible beet, for in the Zollverein the excise is levied on the weight of roots used, not on the quantity of sugar made; it amounts to 12s. per ton on the roots (as much as their cost price in France), which at 7½ per cent of sugar, is equal to 8*l.* per ton thereon.*

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* Fabrication du Sucre de Betterave, p. 294. Dureau.

It is probable that by crossing the varieties, and by improvements in cultivation yet to be discovered, the quantity of sugar in beet will be increased. Indeed, M. Knauer, in Prussia, and M. Louis Vilmorin, in France,† have already announced that they have succeeded in creating new races of beet which are of a richness previously unknown. The analysis of the roots obtained by the former shows 17½ per cent. of sugar, while those produced by the latter give the astonishing proportion of 24 per cent., which is considerably more than the cane contains. These, however, are experimental results which have not yet been confirmed on a practical scale; it is said that the Magdeburg beet contains generally 14 per cent. of sugar, but the original average of 10 to 12 per cent. is still universally found in

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* Revue des Deux Mondes, Nov. 1, 1857, p. 108.

† Guide du Fabricant de Sucre, p. 764, Basset; Fabrication du Sucre de Betterave, p. 295, Dureau.

France. But as by attentive cultivation, and especially by sowing early and keeping the roots as late as possible in the ground, according to what is called Kœchlin's system,[*] from the name of the agriculturist who first tried it, it is now possible to get larger crops of really good roots, even up to 18 and 20 tons per acre, it may be considered as probable that, putting aside the expectation that sweeter varieties of beet will soon be generally produced, and calculating solely on the actual difference of saccharine richness between cane and beet, the same surface of ground will soon produce more sugar from the latter than from the former. M. Payen seems to think[†] that this advantage exists only as regards the cane of Guadaloupe and Martinique, that of Brazil being more productive of sugar, but M. Michel Chevalier is of opinion[‡] that an acre of beet already gives more sugar than an acre of cane, and M. Basset quotes official figures to prove[§] that, whatever be the theoretical calculation, the practical yield of cane in the four French colonies is 11¾ cwt. per acre, while that of beet is 12 cwt.

The introduction of the beet sugar manufacture has naturally had a great effect on the agricultural prosperity of the districts where it is established. The production of corn appears to have extended in all of them, and the multiplication of cattle cannot be doubted. When the emperor visited Valenciennes in 1853, the arch of triumph under which he passed to enter the town bore the following inscription: "Production of wheat in the arrondissement, before the manufacture of sugar, 970,000 bushels; number of oxen, 700. Production of wheat now, 1,157,000 bushels; number of oxen, 11,500." In the whole department of the Nord there were, in 1825, 173,000 head of cattle; in 1840, there were 227,000, and 300,000 sheep.

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[*] Culture de la Betterave, p. 23; and Guide du Fabricant de Sucre, p. 206. Basset.

[†] Chimie Industrielle, vol. ii. p. 235, 1859.

[‡] Annuaire de l'Economie Politique, p. 413, 1854.

[§] Guide du Fabricant de Sucre, pp. 249 to 257.

While, however, it affords so much food for cattle, many people assert that beet is an exhausting crop for the soil. They say that it extracts from it a large quantity of its azote.* But there are arguments against this theory: the azote remains almost entirely in the pulp, and is therefore found again in the manure; so that, as the residues of the factories are consumed exclusively on the very farms which have furnished the beet, the soil does not really lose much. Furthermore, the wheat grown after beet is said to produce heavier heads and longer straw than in any other conditions of rotation. Again, the specific gravity of the juice remains the same as it was forty years ago; it is argued from this, that as the chemical composition of the roots is unchanged, and is not affected by their periodical cultivation in the same soil, the soil cannot be affected either.

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* Fabrication du Sucre de Betterave, pp. 145, 146. Dureau.

While the agricultural part of the question has thus advanced, the details of manufacture have also attained much greater perfection. The processes employed in 1812 were very different from those now in use. The roots were badly washed, and the dirt left in them diminished the value of the pulp as animal food. The crushing was insufficiently and slowly done; it did not exceed 3 tons per day, even in a well-managed factory, while now the average reaches 100 tons. The juice was squeezed out by screw hand-presses; hydraulic presses, though already used for crushing olives, were not applied to beet. The yield of juice amounted to only 60 per cent. of the weight of the roots. Its defecation was effected by lime, used in large quantities. The vacuum-pan was not invented, and M. Achard proposed to evaporate the juice by placing the coppers in baths of boiling water, in order to avoid the damaging effects produced by direct exposure to the fire. The syrup was purified by wet clay or felt. Regular crystallisation, as practised now, was unknown; all that was done was to loaf the sugar into a confused granular mass, of a conical shape. Finally, after some two months' labour, raw sugar was produced, which, after drying for another month, was sent to the refiner. The whole process, refining included, is now completed in three days, within the walls of the same factory.

But after 1822 these incomplete processes were rapidly replaced by others. The peculiar decolorising properties of animal charcoal were brought into play; they had long before been indicated by the Russian navigator Lovitz, but it was not till 1810 that bone charcoal was employed by Guillou for whitening ordinary syrup; and though, in 1813, the experiments of Derosne and Crespel Delisse showed its applicability to vinegar and beet juice, and the refiners partially adopted it from that date,* it was not really taken into use by the sugar-makers till 1825. The cylindrical saw-rasp, making 300 revolutions per minute (increased now to 800), was invented. Windmills and water-power began to replace manual labour. The hydraulic press was adopted, and the yield of juice was raised to 70 per cent. The defecation was still effected by lime; but sulphuric acid (which had long before been recommended for the purpose by Achard) was used to correct its excess. The result of these, and other ameliorations of detail, was to raise the yield of sugar to 3 and 4 per cent.; the cost price fell to 35*l.*, and M. Crespel Delisse declared, in 1826, that he was already getting 5 per cent. of sugar at a cost price of 25*l.*[*]

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* Revue des Deux Mondes, Nov. 1, 1857, p. 98.

Successive improvements have now brought the general yield, by the ordinary processes, to 5 or 6 per cent., and the average cost of manufacture of white lump sugar to 18*l.* per ton, beet being calculated at 10s. 6d. One of the most remarkable signs of the progress effected is the greatly increased average production of each factory. In 1828, 58 works produced 2685 tons of sugar, or 46¼ tons each; in 1836, 436 factories made 40,000 tons, or 91¾ tons each; while, in 1860, 334 works gave 106,000 tons,[†] which is equal to 317 tons each.

But there is room for still further progress. The coal consumed is at the rate of 16 cwt. per ton of roots, a quantity which is certainly susceptible of reduction: this point is especially important in a country where coal is so dear. Another source of economy and advantage would be the formation of an association of the sugar-makers, between whom no link whatever has hitherto subsisted, each of them going his own road without communication with his neighbours. In Germany such an association, under the name of the Industrial Sugar Society of the Zollverein, has long existed with the most useful results; its members meet every year to discuss their common interests.

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[*] Fabrication du Sucre de Betterave, p. 74. Dureau.

[†] Annuaire de l'Economie Politique, p. 170, 1861.

During the last ten years several special processes, offering more or less peculiar advantages, have been invented. Each of them has its friends and its enemies, and it is difficult to arrive at any definite opinion as to their real relative merits; it is, however, worth while to enumerate the most important of them.

The system of Schützenbach, which has been largely tried in Prussia, consists in the desiccation of the sliced roots, and their maceration in water afterwards. Liebig said of this process that it raised the yield of sugar to 8 per cent., but that it required so much outlay for coal and labour that the extra expense was not compensated by the extra yield. Besides, it produced an unusually large proportion of uncrystallisable sugar, which, however good for distillation, was of no value for refining.

The process of M. Maumené suppresses bone charcoal, and replaces it by lime applied to the syrup cold: it is said to considerably increase the yield, but it requires very large special cisterns hermetically closed.

M. Pésier mixes alcohol with the syrup, and then distils away the former: this process also is said to dispense with charcoal and to increase the quantity of sugar.

M. Rousseau's process consists in the saturation of the juice with carbonic acid.

M. Dubrunfaut extracts crystallisable sugar from molasses, by a reaction of barytes. Until this invention all the molasses were made into alcohol or potass, excepting a small quantity, which was converted into vinegar at a factory near Lille. In Germany, spirit has been distilled from the pulp also.

A new process of M. Rousseau, consisting mainly in the defecation of the juice by peroxyde of iron, was announced at the beginning of 1861. It was to render the manufacture of sugar so simple that the farmers were to make it themselves, as they are now doing for alcohol. Judging, however, from the silence which surrounds it, it does not appear to have answered the hopes which its first description created. It is not the first time that the idea has been put forward of making sugar on the farms:* it has been recommended more than once by the Central Society of Agriculture, and by the Society for the Encouragement of National Industry; but hitherto it has not been realised. The Belgian peasants have, however, long made beet syrup, which they sell to the sugar manufacturers, reserving the pulp for their cattle: this system saves a good deal of carriage. The same is the case in certain parts of Germany; at Cologne and at Hans special factories exist for the treatment of this syrup.

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* Revue des Deux Mondes, Nov. 1, 1857; and Fabrication du Sucre de Betterave, p. 249. Dureau.

The beet-sugar trade may now be considered as definitely established in France; it has assumed a really important place in the commerce of the country. Some of the principal manufacturers have established themselves on an immense scale. M. Crespel Delisse, for instance, the same who held on alone after the invasion of 1814, cultivated, in 1855, 2500 acres of beet, fed 1000 head of cattle with the pulp, and got from them manure enough to grow 27,500 bushels of wheat.* M. Dureau says† that the capital invested in the trade amounts to 2,500,000*l.*, of which 1,600,000*l.* are in machinery, and 900,000*l.* in buildings. The same authority estimates as follows the annual outlay necessitated by the manufacture:

Wages	£500,000
Coals	280,000
Chemicals and sundries	192,000
Carriage	172,000
Machinery	120,000
Buildings	80,000
Distillation of molasses	180,000
Cloth and linen for sacks, &c.	100,000
Bone charcoal	108,000
Sundries	140,000
	£1,872,000

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* L'Agriculture et la Population, 1857, p. 60. L. de Lavergne.

† Fabrication du Sucre de Betterave, p. 169.

The cost of manufacture of beet-sugar, by the ordinary process, is given, as follows, by M. Payen:[*]

Roots: 5000 tons, at 10s. 5d. per ton, after deducting the value of the heads and leaves	£2600
Labour	840
Coal	720
Bone charcoal	480
Interest on capital	700
General expenses and repairs	990
	£6330

Deduct value of residues:

Molasses: 60 tons, at 7*l.* 4s.	£432	930
Scum and bone charcoal	93	
Pulp, 1125 tons, at 7s. 1½d.	405	
Net cost		£5400

The product is 300 tons of sugar (5000 tons of roots, at 6 per cent.), which therefore cost 18*l.* per ton.

The account of sale is as follows:

	£	s.	d.
Cost price	18	0	0
Carriage, store rent, discount, &c.	6	0	0
Duty	12	0	0
	£36	0	0

The market price varies now from 40*l.* to 50*l.*

The details of first cost of beet alcohol have no longer any interest as concerns the large factories, which have almost entirely abandoned its manufacture. But its production by the farmers themselves is, on the contrary, a most important question, and may be worthy of examination by English agriculturists. The extraction of spirit direct from beet was attempted, in 1824, by M. Dubrunfaut, but the price of grape alcohol was then too low to allow of its success. In 1845 the idea was taken up again, but it was not till 1853 that the special circumstances which have already been related allowed it to be put into execution on a large scale. The processes then employed, though able to produce with a profit during the crisis in the trade, were too costly to be used when prices returned to their ordinary level. Unless, therefore, a new system of manufacture had been discovered, the make of beet alcohol would probably have expired in 1857. But the adoption of M. Champenois's process, which had already been described in 1854,* took place just in time. It is chiefly based on the maceration of the roots by the liquid residues of the previous distillation (vinasses); it requires very little plant, an apparatus, to work 2½ tons of roots per day, costing only 200*l.*; the manufacture is very simple, and remarkably cheap, the profit is considerable, and the pulp is of the most nutritive quality hitherto produced.† With such advantages, it is not surprising that, notwithstanding the disagreeable smell of the spirit made by this process, it should be largely adopted, that the distillation of beet should now form almost an ordinary adjunct of a well-managed farm in the north of France, and that agricultural distilleries should be increasing in number. As the consumption of alcohol is rising in France (it has more than tripled since 1830), it is probable that the farmers will find a steady and remunerative market for their products.

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[*] Chimie Industrielle, 1859, vol. ii. p. 274.

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* Echo Agricole, 9th and 12th of February, 1854.

† Traité de l'Alcoolisation de la Betterave, 1858, p. 129. Basset.

The cost of manufacture by Champenois's system is given in all the recent French treatises on distillation; the average of the examples quoted comes out at from 1s. 9d. to 2s. per gallon of rectified spirit at 39 deg. Cartier; but M. Payen gives the details* of production on a farm in Touraine belonging to M. Cail, which amount to only 1s. 3d. He counts the cost as follows on nineteen days' working:

	£	s.	d.
102 tons 12 cwt. of roots at 12s.	61	12	0
Coal, labour, casks, and all other expenses .	38	12	0
Total	100	4	0

The products were:

	£	s.	d.
82 tons 1 cwt. 2 qrs. of pulp at 6s. 4d. . . .	26	5	0
1188 gallons of spirit at 39 deg. costing 1s. 3d.	73	19	0
Total	100	4	0

This price of 1s. 3d. is, probably, an exceptionally low rate; the ordinary cost does not appear to range under 1s. 9d. M. Basset says† that the practical average is 50 centimes per litre, which is exactly 1s. 9½d. per gallon; but he counts his strength at only 33 deg. Cartier, so that his price would come out higher still if applied to 39 deg. The theoretical cost of distillation is less than half these sums.

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* Chimie Industrielle, vol. ii. p. 432.

† Traité de la Culture et de l'Alcoolisation de la Betterave, p. 87.

In order to show the importance which the beet-sugar trade has assumed as a whole, it will be useful to give, before terminating this article, a table of the production of sugar in the world. It has been several times estimated. M. Michel Chevalier stated it in 1854* at 2,342,000 tons. M. Payne gave it in 1859† at 2,550,000 tons, composed as follows:

	Tons.
Cane sugar	1,950,000
Beet "	480,000
Palm "	100,000
Maple "	20,000
Total	2,550,000

He does not, however, indicate the quantity of beet-sugar produced by each country; he limits himself to the total of 480,000 tons (which has since been confirmed by other authorities). It is to be regretted that no general table appears to exist of the geographical division of the present production of beet-sugar. Mr. M'Culloch gave one in 1856, but he arrived at a total of only 220,000 tons, which is less than half the actual quantity. It is probable that the yield for 1861, of each of the producing countries, was roughly as follows:

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* Annuaire de l'Economie Politique, 1854, p. 407.

† Chimie Industrielle, vol. ii. p. 176.

	Tons.	
France	110,000	
Belgium	30,000	
Zollverein	160,000	(110,000 in 1857)
Russia	70,000	
Austria	50,000	
Other states	60,000	
Total	480,000	

This, however, is only an approximative estimate, made in the absence of reliable information: it can only be regarded as illustrative.

The great fact is, however, clear, that a root which has really been only brought into use since 1822 already produces more than a sixth of all the sugar of the world. This result has been attained in forty years, and against all sorts of difficulties. With this experience before us, is it not possible to admit that the continental market may ultimately be entirely supplied by home-grown beet-sugar?

CHAPTER X.

SILK.

There is a difference of opinion as to the exact date at which the silkworm and its indispensable mulberry-tree were introduced into France. After they had been brought from China to Ceylon, and thence to Constantinople, about the year 550, they advanced together slowly to the Morea (whence comes the name of murier—mulberry), and on by degrees to Sicily and Calabria. M. Moreau de Jonnès fixes the moment of their arrival in France at the year 1494, when, according to his version,* some gentlemen of Dauphiné, who accompanied to Sicily the invading army of Charles VIII., brought back some mulberry sucklings to France. They were planted in the neighbourhood of Montélimart, and succeeded perfectly. As soon as they were able to furnish leaves enough to feed worms, eggs were sent for to Naples, and the production of silk commenced.

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* Statistique de l'Industrie, p. 145.

Other authors, however, state that the worm was grown in France as early as the fourteenth century, and it is certain that the manufacture of silk tissues existed at Marseilles, Avignon, and Nîmes at that period. The silk employed was imported from Spain, Italy, and the Levant.

The weaving branch of the trade took strong root at its very origin; its progress was steady and comparatively rapid; but the production of raw silk advanced much more slowly. The times of the Valois were not propitious, and though under Louis XI. the cultivation of the mulberry was somewhat encouraged, the king himself planting trees in his famous park of Plessis-lès-Tours, it was not till Henry IV. that any serious efforts were made to stimulate the growth of home silk. Urged on by his own activity, and by the advice of some of his counsellors, among whom the father of French agriculturists, Olivier de Serres, exercised great influence on the question, the Béarnais endeavoured to enfore the plantation of mulberry-trees by royal decree, just as Justinian had done in the Eastern Empire a thousand years before. And he added example to precept, for he filled the garden of the Tuileries with young trees, and grew worms in his own palace.* These measures did not, however, succeed; some large plantations were made near Nîmes; but with that exception the royal decree produced scarcely any effect. The production languished, and the weavers, who had by this time begun to group themselves round Lyons, continued to import their raw material: the use of silk was still mainly limited to the court, there was no general market, and the sale was small. Even the splendid wastefulness of the courtiers of Versailles, while it stimulated the weaving trade, scarcely helped to develop the yield of French-grown silk, especially as it was supposed to be of inferior quality. Colbert, however, came to the aid of the national production, and ordered, with his grand, impatient energy, the plantation of mulberry-trees all along the high roads of the south. But the landowners complained of the measure, and opposed it in every form, and Colbert, rather than give up his idea, was reduced to offer a premium of twenty-four sous for every tree three years old. The peasants were tempted by the bribe, and mulberry-trees began at last to appear very generally in the south-eastern provinces. The rearing of worms was simultaneously pushed on.

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* Ecoliers et Vers-à-soie, p. 187.

But the efforts of Colbert, and the commencement of cultivation which they created, were paralysed by the effects of the revocation of the Edict of Nantes. The great majority of the weavers of Languedoc were Protestants, and when they were driven out by persecution, not only did the manufacturing trade suffer materially, but the local production of silk was almost suspended. The number of looms in the Lyonnais, which had previously ranged from 9000 to 12,000, fell at once to 3000.* The exiled weavers carried their secrets to London and Berlin: it was they who established the silk trade at Spitalfields in 1685.

Under the Regency and Louis XV. the trade recovered in both its branches, and rose again to some importance, but there are no detailed figures about it before 1788, when M. de Tolosan, then director of commerce, drew up the first statistics of French trade. He calculated that 1600 tons of raw and thrown silk were then annually worked up in France, and that two-thirds of the quantity were home-grown, only one-third being imported. The cultivation of worms had therefore acquired, since Louis XIV., sufficient importance and perfection to be able to compete successfully with foreign producers. The value of the tissues made amounted to 5,000,000*l.*, of which it is curious to note, as an indication of the habits of the period, that 1,000,000*l.* were in hosiery (principally silk stockings), and 1,200,000*l.* in ribbons and braid. The exportation reached 1,000,000*l.*, so that the home consumption under Louis XVI. amounted to 4,000,000*l.*, which, on the then population of

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* Rapports sur l'Exposition de 1851, vol. iv., 13th Jury, p. 2.

24 millions, gave an average of 3s. 4d. per head. When the misery and poverty of the mass of the nation are borne in mind, this rate was a most extravagant one, and proves the reality of the charge of ruinous luxury so often brought against the higher classes, who alone consumed all this quantity of silk.

But its adoption by the nobles, though it temporarily stimulated the trade, created, in fact, a new difficulty for it, for the use of distinctive garments added another notch to the score which the people were marking up against their masters, and made them hate the sight of silk itself. At the opening of the States-General in 1789, the members of the higher clergy wore the camail and soutane of violet silk, and the nobles the habit of cloth of gold and the cloak of velvet or satin, while the under clergy came in soutanes of black serge, and the tiers état in black woollen. This contrast produced, at the very outset of the Revolution, a violent feeling against the use of silk, and prepared the way for a diminution of its sale.

The events of 1793 almost destroyed both the manufacture and the production; there was scarcely anybody to buy silk; the court, the clergy, and the seigneurs had disappeared. At the siege of Lyons by the royalists the factories were destroyed. The mulberry-trees were pulled up, the worms died out, and the trade fell to such a point that, as M. Moreau de Jonnès says, "the only remaining use of silk was to make the victorious standards of the armies of France."

From 1790 to 1803 the manufacture can scarcely be traced, but in the latter year the strong hand of Napoleon brought it back to life. The re-establishment of religion, the formation of the brilliant court of the Empire, the general return to a normal state of habits, all helped to create a market and to revive the trade.

In 1812 the crop of cocoons, in the twelve departments where their cultivation then existed, amounted to 5250 tons, which produced 480 tons of thrown silk.* The importation amounted to 244 tons, so that the total quantity woven amounted to 724 tons, which employed 27,410 looms, and 52,834 workmen. The value of the manufacture was 4,300,000*l.*, of which exportation took away 1,200,000*l.*, leaving 3,100,000*l.* for home use.

There are two remarkable facts to observe here. The first is, that, notwithstanding the augmentation of population, and the general increase of public wealth, the quantity of silk manufactured fell from 1600 tons before the Revolution to 724 tons in 1812, while the value of the average consumption per head diminished in the same period from 3s. 4d. to 2s. 3d. The second, which is more striking still, is that the value of the 724 tons made in 1812 was almost equal to that of the 1600 tons made in 1788. The former were worth 4,300,000*l.*, and the latter 5,000,000*l.*, so that the price of silk tissues had almost doubled in twenty years. This remarkable rise resulted from the combined effects of the difference of the value of money, the rise of wages, and the continental blockade. It has been steadily maintained since.

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* Statistique de l'Industrie, p. 152.

Since 1812 the progress of the weaving branch of the trade has been regular and rapid. The number of looms rose from 27,410 in 1812 to about 140,000 in 1852, while the value of the articles manufactured, including mixed stuffs, got up between the same dates from 4,300,000*l.* to 15,000,000*l.* Of the latter sum about 10,000,000*l.* were paid for raw material; the remainder represented wages and profit. Of the 10,000,000*l.* of raw material, 5,600,000*l.* were supplied by France, 3,400,000*l.* were imported, and the other 1,000,000*l.* was made up by the value of the wool, cotton, and other substances mixed with the silk. Of the 140,000 looms employed to work up this material, 70,000 worked for Lyons, 30,000 for St. Etienne, 10,000 for Nîmes and Avignon, and the remaining 25,000, which were spread about Picardy, Normandy, and Alsace, for the Paris market.*

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* Rapports sur l'Exposition Universelle de 1851, vol. iv., 13th Jury, p. 5.

In 1855 the number of looms had risen to 220,000, and the value of the manufacture to 21,000,000*l.*[*]

Since that year no official publication has been made of the progress of the make. M. Block expresses the opinion that the production of 1858 amounted to 48,000,000*l.*,[†] but it can hardly be admitted that it could have more than doubled in the three years since 1855: it had certainly largely progressed, for the exportation alone went up some 5,000,000*l.* in that short interval, but it is scarcely likely that even at this moment the annual value of the make can exceed 45,000,000*l.* at the outside, notwithstanding the progress made since 1859.

The exportation of manufactured silk in 1860 reached 3465 tons,[‡] which, at the average price of 1858, 5400*l.* per ton,[§] would have been worth 18,700,000*l.* If, therefore, the total production really reaches 45,000,000*l.*, there would remain a value of 26,300,000*l.* for home use, which, on the whole population of 37 millions, would give a mean of 14s. 2d. per head. These figures can only be regarded as approximative, but they suffice to show that since 1812 the manufacture has increased about tenfold, and the consumption nearly sevenfold. The exportation has gone up in the same period from 1,200,000*l.* to 18,700,000*l.*

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[*] Rapports sur l'Exposition de 1855, vol. ii. p. 376.

[†] Statistique comparée de la France, vol. ii. p. 153.

[‡] *Moniteur*, January 21, 1861.

[§] The exportation of 1858 was 2781 tons, worth 15,120,000*l.*

The importation of foreign silk goods is naturally feeble; the only articles worth mentioning are the Swiss and German ribbons, of which a value of about 280,000*l.* were introduced into France in 1858, the quantity having risen regularly since 1827.

Brocades, furniture stuffs, and church ornaments, are chiefly made at Tours. The light silks for dresses are principally made in the departments of the Isère and the Ain, and almost always in the country districts. Coloured silks come mainly from the neighbourhood of Nantua, while the black silks are produced at La Tour du Pin. The richer stuffs, and all the moires, are made at Lyons itself, and ribbons are almost exclusively made at St. Etienne. This distribution of the various classes of manufacture has the advantage of keeping the highest-paid work for the town hands, who naturally have to incur more expense than the country weavers, but it deprives the former of the resource of making common stuffs when the manufacture of the dearer products becomes momentarily scarce.

The silk itself is furnished by the so-called manufacturers, but in the Lyonnais the looms generally belong to the workmen; there are usually two or three in a room, the highest number being eight. The proprietors of these looms of course always remain at the same spot, but the journeymen they employ to aid them in weaving have become a vagabond race, and wander about from town to town, and from village to village, as caprice or work may tempt them. The consequence is, that the loom owners, who are themselves successful workmen, are endeavouring to keep their looms going by the labour of their own families alone, so as to be independent of the journeymen. They gain, on thirteen hours' effective work, about three shillings per head per day, but they lose about a hundred days in the year, of which sixty are Sundays or fêtes, and the rest for remounting the looms after each piece is finished.*

Power-looms are still but little used in France. They weave much faster than hand-looms, but it is more difficult to correct faulty manufacture with them, especially when the defect is in the thread itself. The Lyons manufacturers specifically declared to the Tariff Committee† that it is impossible to produce rich plain silks with the requisite perfection in a power-loom; they even stated that it is possible to distinguish, by the eye and the touch, the difference between the perfect tissues produced in Lyons by weavers who do nothing else and those made by the country looms, which are often abandoned by their owners for field work.

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* Enquête sur le Traité de Commerce, vol. v. p. 592.

† Idem, p. 595.

All the manufacturers of the highest class of articles employ French-grown silk, which they state to be decidedly of a superior quality to any they can get elsewhere, especially as the Chinese and Japan raw silks come to them mainly through England, where the best of them are often bought up on arrival. On this point it should be remarked that the Chamber of Commerce of Lyons has often expressed regret that while Lyons is the largest consumer of raw silk, London should remain the great European market for that article.

Up to 1854 the trade was mainly supplied by home-grown silk, the balance required for manufacture being alone imported; but since that date, for reasons which will presently be given, by far the larger part of the raw material has been drawn from abroad.

The silk trade of France is, of course, more important than that of England; but it is remarkable to observe that, as far as the insufficient nature of the information which exists on the subject allows of a detailed comparison between the production of the two countries, England is progressing more rapidly than France.

The proportionate weight of the two makes can be ascertained very approximatively; but there are apparent errors in the published values which render it impossible to examine the money part of the subject.

The importation of raw and thrown silk into England amounted in 1860 to 4197 tons;* it had just doubled since 1846; 194 tons of thrown silk were re-exported, so that the quantity apparently left for manufacture was 4003 tons. The importation of the same raw material into France in the same year was 5278 tons;† there is no mention of re-exportation in the customs returns, so the whole quantity may be supposed to have been worked up in the country. The production of cocoons in 1860 was probably about one-third higher than in 1856; it may, therefore, be put at 10,000 tons, which, at the average yield of 14 per cent. (it varies from 10 to 18 per cent., according to the quality of the cocoons), would have given 1400 tons of raw silk. So that the total weight manufactured in France in 1860 was probably about 6678 tons, or two-thirds more than the English quantity.

In 1846 the yield of French-grown raw silk was about 2800 tons, while the importation amounted to 1200 tons; the total for that year was, therefore, about 4000 tons. As it reached 6678 tons in 1860, the trade had increased two-thirds in the interval. It has just been shown that the English make has doubled in the same period; it consequently appears that the progress of England is now more rapid than that of France.

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* Statistical Abstract, No. 8, p. 15.

† *Moniteur*, Jan. 21, 1861.

These are the results as regards quantities alone; but if it is attempted to make a similar comparison between the relative money values of the two makes, a singular difficulty presents itself. It has already been said that the average apparent value of French silk goods comes out at 5400*l.* per ton (this includes mixed tissues). Now, the exportation in 1860 of English silk stuffs and ribbons alone, amounted to 262 tons, of a declared value of 731,941*l.*, plus 855,362*l.* for other articles, of which the weight is not given.* Calculating, therefore, on the former only, the average price of the English articles comes out at only 2794*l.* per ton, which is just half the French mean. There is evidently an immense error here on one side or the other; the difference of value is far too large to be explainable by the superior quality of the French goods. However much better they may be, a difference of one-half on articles, of which the raw material furnishes some two-thirds of the cost, is evidently absurd. Until this error is corrected there are no means of computing the comparative value of the consumption in the two countries. All that can be said with an appearance of probability is, that as France exports about two-fifths of the manufactured value it produces, and as the proportionate weight exported may reasonably be calculated at the same rate, the quantity left for home consumption in France ought to amount to about 4000 tons; and that as England exports a weight of 468 tons of stuffs, ribbons, and twist, plus a value of 855,362*l.* of other articles, which at the same weight for value as the stuffs and ribbons would represent about 300 tons more, the total exportation amounts to about 768 tons out of the 4000 manufactured in England. The interior consumption would therefore be about 3230 tons against 4000 in France. As the proportion between the population of the United Kingdom and France is roughly as five to six, it would result that the consumption per head is slightly larger in France than in England. These calculations are, however, so uncertain in some of their elements, that they can only be regarded as illustrative. Even the important fact that France appears to export 2678 tons of silk goods, and England only 768 tons, is not absolutely proved.

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* Statistical Abstract, No. 8, pp. 35 and 37.

While the manufacturing branch of the trade has thus advanced, its other element, the production of raw silk, has lately got into serious difficulties. As the question possesses both agricultural and industrial importance, it is worth while to give some details upon it.

The official statistics which are published on

French séricicultūre (which is the name given to the cultivation of silkworms) apply to the single year 1847. They announce that at that date there were 100,568 acres under mulberry, bearing 24,069,694 trees, and that the crop of cocoons was 12,500 tons.* The plantations were almost entirely in the basins of the Rhône and the Durance, the few exceptions being in Touraine and the valley of the Garonne.

It results from these figures that the average number of trees per acre was 239, and that, as the consumption of leaves is generally calculated at an average of about twenty-six times the weight of cocoons obtained, the crop of leaves ought to have been 325,000 tons, which would be at the rate of nearly 3¼ tons per acre, or about 30 lb. per tree. The latter average is perhaps a little tight, but it allows for the deduction of the stalks, which are not given to the worms. The very best trees, after seven or eight years' growth, do not give more than 70 lb. of leaves.†

It is, however, probable that, notwithstanding their official character, these returns are incorrect. In a detailed table of the annual production of cocoons in France, published by the celebrated chemist Dumas, the average yield from 1846 to 1852 is given, not at 12,500 tons, but at 24,254.‡

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* Statistique de l'Industrie, p. 130.
† Ecoliers et Vers-à-soie, p. 152.
‡ Bulletin de la Société d'Encouragement, p. 181. March, 1857.

Now, as the latter figure is a mean over six years, it may be safer to put 1847 at only 20,000 tons, which quantity is supported by the calculations of other authorities. The quantity of leaves eaten scarcely varies on the whole, though it is necessarily affected in detail by their quality and by the skill of the worm-growers. It follows, therefore, that to raise 20,000 tons of cocoons, the consumption of leaves must have reached 520,000 tons, instead of 325,000. M. Dumas gives the real mean crop of leaves, from 1846 to 1852, at 575,000, so that, adopting that figure and counting at the rates which result from the official statistics, and which are generally confirmed by the special works on the subject, of 30 lb. of leaves per tree, and 239 trees per acre, there ought to have existed in France, at the date in question, 42,933,000 trees, occupying 180,000 acres, or four-fifths more than the official returns indicate.

These differences do not, however, affect the agricultural result; it probably does not much vary from the first calculated quantity of nearly 3¼ tons per acre. Therefore, as the average sale price of leaves during the period under examination came out at 3*l.* 4s. per ton,* it follows that the total value of the leaf crop was 1,840,000*l.*, or say 10*l.* 8s. per acre (these two figures do not exactly tally, because the average crop is not precisely 3¼ tons). As the expense of plucking well-trimmed trees amounts to 5s. per ton of leaves (on ordinary long-branched trees it would be very much more), the yield per acre is reduced to 9*l.* 11s. 9d., which is very remunerative for a tree crop. Of course, with old trees in full bearing the return is considerably higher, but these figures suffice to show that, under average circumstances, the cultivation of the mulberry is a productive addition to southern farming. The calculations apply specially to the years between 1846 and 1852, but there is no reason to imagine that their elements would have become changed since if the sudden diminution of consumption had not reduced the sale of leaves.

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* Bulletin de la Société d'Encouragement, p. 155. March, 1857.

The result of silk-growing in the magnaneries,* or worm-houses, varies materially with the extent of the establishment and the ability of its manager. Up to 1854, the greater part of the French-grown silk was produced by the peasants themselves in little lots, but it seems probable that, if the trade should recover from its present critical state, large magnaneries will be successively established, and that the production will become more concentrated. Before 1854 the cost of production stood about as follows:

The seed (or eggs) was worth about 3s. an ounce; to get an ounce of hatched seed it is necessary to employ about one-third over in order to compensate for the eggs which come to nothing; the value of the seed employed must therefore be put at 4s. It produced about 40,000 worms, which ate about a ton of leaves, and made about 77 lbs. of cocoons. The latter average is universally adopted, but in certain exceptional and experimental cases much larger yields have been obtained. The ton of leaves is worth 3*l.* 4s., and the trays and other utensils may be put at 10s., so that the total cost of raising an ounce of seed (which is the quantity always calculated on in France) came out at 3*l.* 14s., not including labour. The 77 lbs. of cocoons were worth (previously to 1854) about 1s. 6d. per lb., which gives 5*l.* 15s. 6d. So that on this rough calculation the peasant growers got 2*l.* 1s. 6d. per ounce of seed for their trouble, irrespective of their gain on the leaves, which they generally cultivated themselves.

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* The word magnanerie comes from *magnan*, the old Languedocian name for silkworm.

This was the state of the case down to 1853; in that year the total yield of cocoons was 26,000 tons, worth about 4,680,000*l.*, the great mass of which went into the pockets of the small farmers of Provence. The trade had assumed serious importance, for such a home production of high-priced raw material constituted a valuable addition to the national wealth. It is probable that the yield would have continued to increase, not only by the growth of more worms, but also by further improvements in the details of management, especially in the winding of the silk from the cocoons, in which the waste was still large. But just at the moment when French sériciculture seemed to have such brilliant prospects before it, the disease of the worm, which had lurked about the magnaneries of the alluvial plain of the Durance for some twenty years, broke out with violence, and in every direction, at the end of 1853. Under its influence the production of cocoons fell successively from 26,000 tons in that year to 7500 tons in 1856, while their price, which had already got up since 1852 from 1s. 4d. to 1s. 6d. per lb., rose to 1s. 9d. in 1854, to 2s. in 1855, and to 3s. in 1856. Notwithstanding this rise of price, which the public had to pay, the damage to the worm-growers was very considerable, for they at once lost at least half of the large and easily earned income which the cultivation had hitherto brought them.

The disease, which still continues to ravage the magnaneries of almost all Europe, was at first supposed to consist solely in the decline or exhaustion of the worm, but it has since been proved that there are several distinct maladies, each producing special and different results. Its first effect was to reduce the quantity of silk; the second was to oblige the growers to give up the use of French seed, and to import it from countries still unattacked. But from 1855 the best foreign seed began to fail also, and up to the present date, notwithstanding the remarkable efforts which have been made, it has been impossible to obtain eggs which resist the contagion. Whether brought from Italy, Spain, Turkey, or China, they are all affected in various degrees.

The importation of foreign seed, which was only 16 cwt. in 1846, rose to 10½ tons in 1851, and to 24½ tons in 1853, while its price got up from about 2*l.* 12s. per lb. in 1846, to 3*l.* 12s. in 1853, and to about 9*l.* in 1856.* The question for the magnaniers was where to get seed which would withstand the contagion. They have tried all sorts of experiments, but with no real result. M. Levert, prefect of the Ardèche, which is, or rather was, a great silk-growing department, reported in 1858, that the average crop of cocoons in his district was only 19 lbs. per ounce of hatched eggs, instead of the previous average of 77 lbs. The seed brought from Andrinople had succeeded the best, as it failed only 3 times out of 108 trials, while the French seed failed 97 times out of 109. But a few months afterwards the Andrinople seed caught the malady in its turn, and no longer produced a crop.†

The disease continues to this day with almost the same virulence, and it is still impossible to express an opinion as to the final issue of the struggle between it and the worm-growers. It would, indeed, be deplorable if so thriving a trade were to be beaten by such a cause. Efforts are being made to turn the difficulty, and the scientific societies and the government are trying to introduce other species of worms, so as to prevent the trade from dying out.

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* Bulletin de la Société d'Encouragement, p. 158. March, 1857.

† Ibid., p. 176, March, 1859, and p. 247, April, 1859.

The worm called the Bombyx Cynthia, which feeds on the leaves of the castor-oil plant, has been experimented on, especially in Prussia.* It produces a dull silk; but as several crops can be got in the same year, the produce can be sold at a low price.

But the worm which feeds on the Japan varnish-tree, which is now acclimatised in France, and is even planted on the Boulevards of Paris, appear to offer excellent results.† It feeds on the tree itself, in the open air, and does not require any buildings to shelter it. The silk it gives is rough, but is superior to that of the Bombyx Cynthia. In the imperial farm at Vincennes, the emperor has given ground to grow the varnish-tree, and to establish the cultivation of the worm. The cocoons now sell at 1s. 2d. per lb.

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* Rapport de M. Kauffmann à la Société Prussienne d'Acclimitation.

† Rapport de M. Guérin-Méneville sur le Ver-à-soie de l'Ailante.

Efforts have also been made to introduce the growth of silkworms (both the mulberry and varnish kinds) into Algeria, but, like everything else in that too military colony, the cultivation languishes. In 1854 the whole value of the cocoons obtained did not exceed 1300*l.*[*] In 1857 there were 305,000 mulberry-trees, and the worm was still free from the disease.[†]

The general position occupied by France in the production of raw silk, before the disease broke out, had become important, not only as regards the large profit obtained, but also relatively to other producing countries. According to M. Dumas,[‡] the value of the cocoons grown in the whole world, in 1853, was composed as follows:

France	£4,344,000	
Italy	11,260,000	
Spain, and other European countries	984,000	
Total for Europe		£16,588,000
China	17,000,000	
India	4,800,000	
Japan	3,200,000	
Persia	920,000	
Other Asiatic states	2,192,000	
Total for Asia		£28,112,000
Africa		44,000
The Pacific Islands		24,000
America		20,000
General total		£44,788,000

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[*] L'Agriculture et la Population, p. 74.

[†] Compte-rendu de l'Académie des Sciences. April 20, 1857.

[‡] Bulletin de la Société d'Encouragement, p. 151. March, 1857.

According to this table, France produced about a tenth of the value of all the silk of the world, and it is certain that that proportion would have increased. It can only be hoped that the disease may yet be conquered, and that this eminently national industry may be preserved to France. It has thus far been essentially a poor man's trade, notwithstanding the great value it represents. Not only is the silk-growing mainly in the hands of the peasants, but the weaving also is principally based on the home hand-loom system. The condition of the silk-weavers has formed the subject of a most able report presented to the Institute by M. Louis Reybaud. He does not describe their state as very satisfactory, but such of them as live in the country, especially the spinners, lead a cheerful life enough, and perhaps even merit the poetic page in which M. Michelet says of them:* "A particular charm surrounds the working of silk. It ennobles those who make it. In crossing our rudest countries among the valleys of the Ardèche, where all is rock, where the mulberry and the chesnut seem to live without earth, on pebbles and air, where low houses in dry stone sadden the eye with their grey tints, everywhere I saw at the doors two or three bright-eyed girls, with brown skins and white teeth, who smiled at the passer-by and spun gold."

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* L'Insecte, p. 171.

CHAPTER XI.

MERCHANT SHIPPING.

THE maritime trade of France is divided into the two great classes of reserved and free navigation.

Reserved navigation, that is to say, the part of the sea-transports of the country which is exclusively retained for national vessels, includes coasting, fisheries, and the communications with the French colonies.

Free navigation comprises all the trade between French and foreign ports, and is carried on in competition with foreign vessels. But in this class, also, French interests are protected by a system of differential duties applying both to the ship itself and to the goods it carries.

The dues imposed on foreign bottoms on entry into a French port are very unimportant. They consist in a tonnage duty of 3s. 3d. per ton measurement (with certain exceptions in favour of passenger vessels, and other special cases), and in droits d'acquit and droits d'expédition of trifling amount. The total of all these various extra charges is very small; they constitute no real protection for the home shipowners. In the port of Marseilles, which is the most important in France, they are not levied at all.

But the additional duties on the entry into France of goods arriving under a foreign flag form an apparent real protection, for they seem at first sight to oblige importers to give preference to national vessels in order to avoid the extra expenses incurred on merchandise which arrives in other ships. These differential duties are established (in all cases where the law has not specially fixed their amount) at ten per cent. extra on the first 2*l.* of duty, calculated on the unity of application, and five per cent. more on the rest, up to 12*l.*, after which no farther addition is made.* They are not, however, applied absolutely to every foreign flag without exception; on the contrary, every country with which France has successively made a treaty of commerce, or navigation, has been relieved from their action in various degrees, and has received the right of shipping direct to France from its own ports in its own vessels, at the ordinary rate of duty. England has possessed this privilege since 1826, and several other nations have since acquired it.

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* Tarif Général des Douanes de France. Observations Préliminaires. Art. 51.

French navigation is again divided, by the laws and regulations which apply to it, into three other general categories, foreign voyages, coasting (which is subdivided into great and small coasting), and what is called bornage.

The term foreign voyages is defined by Art. 377 of the Code of Commerce as applying to all navigation between France and certain specified countries or ports, all lying beyond the Straits of Gibraltar or the Sound, but in its practical application by the Custom-house authorities, the geographical distinctions laid down by law are put aside, and foreign voyages are taken to imply any movement of ships between a French and a foreign port, wherever the latter be situated, while coasting comprises all the relations of the French ports between themselves, without reference to their relative position on the same or different seas. But here comes in the distinction already alluded to between great and small coasting. The former refers to voyages from a port on the Atlantic to a port in the Mediterranean, or *vice versâ;* while the latter applies to ports situated on the same line of coast. According to this interpretation the passage from Calais to Dover is foreign navigation, while a voyage from Dunkirk to Nice is only coasting, though the ship which performs it traverses the Channel, the Bay of Biscay, the Eastern Atlantic, and the Mediterranean.

Bornage is the small local navigation carried on by vessels not exceeding twenty-five tons, between ports not more than forty miles apart.

The ships employed in these various branches of trade have hitherto been exclusively French built, the introduction of foreign vessels into French hands having been prohibited in 1793. With the exception of a temporary suspension during and after the Crimean war, when the want of ships was so strongly felt that an imperial decree of 17th October, 1855, authorised the admission of foreign-built vessels at an *ad valorem* duty of ten per cent., this law has remained constantly in force until the conclusion of the recent commercial treaty with England; the new tariff admits the Francisation of English wooden vessels at a duty of 1*l.*, and of iron vessels at a duty of 2*l.* 16s. per ton of French measurement.

This is the first change of any importance which has taken place since the revolution in the laws which regulate the composition and direction of the merchant navy of France. The other conditions prescribed with respect to it remain unaltered. The officers and half the crew must be French subjects. The captain must have passed an examination of capacity, for which he cannot present himself unless he is twenty-four years old, and have navigated for five years, of which twelve months must have been passed in a man-of-war. These conditions apply equally to ships engaged in the foreign or coasting trade. The masters of vessels employed in bornage are exempted from examination, but they must obtain a license from the maritime prefect of their district.

Besides these various regulations, there are a quantity of others which are not worth enumerating, but which, applying as they do to details of the most trifling nature, show how the French administrative system is applied in every direction, even to points which seem beneath its notice.

In addition to the special laws relating directly and specifically to merchant shipping, its interests are affected very materially by the consequences of another law which is applied with a different object.

The war navy of France is recruited by the system of "maritime inscription," founded by Colbert; the action of this system is peculiar. While the conscription for the army does not apply to the entire population—while it takes only a certain number of the conscripts of the year, and leaves the rest entirely free—while it definitely releases all soldiers after seven years' service, which, in peace time, are ordinarily reduced to four, the conscription for the navy is differently conducted. It reposes on the principle that every Frenchman connected with the sea, every sailor and every fisherman, every mechanic occupied in maritime constructions, owes his services to the state whenever they are wanted. It keeps every mariner and shipwright, without exception, at the disposal of the government during his entire life from eighteen to fifty years of age, and though, in ordinary times, he has only six years' service to give,* the performance of that service does not release him, as in the army, from the obligation of serving again; on the contrary, he is bound to present himself at every calling out of the entire force which political circumstances may render necessary.

The list of the maritime inscription, which is most carefully kept up by a body of inspectors named for the purpose, includes every individual who has been occupied for two years as a fisherman, not only on the sea, but also on rivers up to the limits of the tide, or, where there is no tide, to the point where sea-going vessels stop; every individual who has served at sea, no matter how, during eighteen months, or who has made two voyages abroad; and every workman employed in a ship-yard. Once on the list, no one can be removed from it without first signing a declaration that he gives up a seafaring life; if he once fishes or navigates for a quarter of an hour, he is liable to be instantly reclassed. In time of war no removals are allowed at all; and all the men on the list may then be indefinitely retained in the service until the age of fifty. No mariner can quit his locality without permission, so that the state may always know where to find him; but the state may, at any moment, take him away from his family, whose sole support he may be, and send him to sea for years.

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* Décret du 25 Juin, 1861.

This system is certainly extremely perfect in its political and military effects; it assures to the navy a full supply of men, and to the dockyards a constant store of skilled labour; but it is cruelly harsh towards the maritime population, who are exposed to this exceptional legislation, and it reacts very unfavourably on the ship-building and merchant-shipping interests of the country.

It does not encourage the inhabitants of the coast to cling to the sea; at each successive calling out of the entire inscription, many fishermen abandon their career, and turn their attention to agricultural or manufacturing occupations, rather than remain at the disposal of the state. This fact is indisputable, though no figures can be obtained to show its degree of importance. It is true that the list of the maritime inscription is always increasing, proportionately with the general progress of trade and navigation, and with the constant augmentation of the coast population, which each successive census reveals;

it rose from 94,611 in 1825, to 160,014 in 1854,* and is now probably higher still. But these numbers are partly illusory; they include all the useless men, as well as the mechanics, of whatever kind, who are engaged in maritime constructions, and it is doubtful whether the 1535 miles of coast which France possesses could furnish altogether more than 60,000 really available seamen in the event of an emergency.† This comparatively feeble result is certainly not produced by any want of vocation or fitness for a seafaring life amongst the inhabitants of the French coast; on the contrary, from Dunkirk to Bayonne, and from Port Vendres to Nice, the seaboard population presents remarkable aptitude and attachment for the profession of the sea. From time immemorial, the Bretons, the Basques, and the men of Provence have been hardy and able sailors, and if in the present generation they appear to be less eager than their fathers in the pursuit of a maritime career, it is solely in consequence of the rigorous law which deprives their class exclusively of all real personal liberty, and keeps them numbered like packages at the call of the state.

This state of things affects the merchant-shipping interest in various ways. It of course diminishes the number of seamen, and makes their supply depend on the wants of the navy, But it acts with special effect on the ship-builders, and as thus far it is they who alone have produced the vessels which carry on the trade of the country, it follows that the system of maritime inscription begins to damage commercial navigation at its very root.

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* Statistique comparée de la France, vol. i. p. 518.

† Journal des Economistes, p. 201. May, 1861.

No one can establish a building-yard unless he is himself connected with the sea; he must either be on the list of inscription or be a pupil of the Polytechnic School. The workmen he employs must, unless they are foreigners, be exclusively chosen from the same list, and he is liable to imprisonment if he takes one single independent labourer. He is even forbidden to employ discharged soldiers who have finished their term of service, unless they consent to class themselves as sailors, and accept all the consequences attached to the step. The agents of the navy department have the right to inspect his yard, and to call his men over every day to verify their positions.

But, as the number of men of this class is limited, private ship-builders, having no power of obtaining them elsewhere, are obliged to pay them high wages to get them at all, for men will naturally not consent to live with the right of the state over their heads unless they are paid in a proportion which compensates the risk. Shipwrights' wages vary, it is true, like all others, with the demand and with the commercial importance of the spot, from a maximum at Marseilles and Havre to a minimum at Dunkirk and Bayonne, but they are everywhere higher than the current rates paid to the same class of mechanics employed in the same town on ordinary work. At Marseilles, which is the most active building and repairing port, shipwrights earn as much as 6s. a-day, while in the neighbouring Piedmontese ports the rate for the same men is only 3s. 2d., and at Barcelona, which has the reputation of being the dearest port in the Mediterranean, it is only 4s. 2d.*

This universal and absolute disadvantage created for private builders by the effects of the inscription is aggravated by the risk to which they are exposed of having their men called into the dockyards at any moment of pressure, and of consequently finding themselves without hands to execute their work. And this is not merely a theoretical danger; numerous cases of its realisation exist. M. Malo, a ship-builder at Dunkirk, told the Committee of Inquiry on the Commercial Treaty with England,† that he was building a 10,000*l.* ship to contract during the Crimean war, that the government suddenly called in the greater part of his men, that he therefore could not finish the vessel, and that he had to pay 4000*l.* damages in consequence.

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* Journal des Economistes, p. 204. May, 1861.

† Enquête sur le Traité de Commerce, vol. vi. p. 900.

As, therefore, irrespective of its general effect on French merchant seamen as a body, the maritime inscription exercises unfavourable influence, and produces a real increase of cost on the shipbuilding trade, it is all the more remarkable to find that, notwithstanding this material disadvantage, the French builders all agree that they can make wooden vessels at nearly the same price as in England. Several of them were examined before the Tariff Committee, and it results from their combined evidence that the cost of construction of the hulls is not more than 2½ per cent. higher in France than on this side of the Channel. The timber employed in both countries is brought from Russia, Prussia, and Sweden, and comes to the same price in each, while French-grown oak for framing, which at one time was a good deal used in England, is actually cheaper in France. As wages are generally higher in England, the effects of the inscription bring them about level in the two countries, and the real difference against France is only in the greater price of the iron employed and in the absence of a large regular trade.

While, however, the comparison of the cost of hulls come out so nearly equal, the cost of rigging is dearer in France, and the entire ship, ready to go to sea, cannot be estimated at less than an average of 20*l.* per ton of French measurement for A 1 in the Veritas list—which corresponds to our Lloyd's book—while the English mean price for the same type of vessel was given to the Committee at 18*l.* 17s.,* showing a difference of about 6 per cent. against France. At certain ports the cost comes lower; at Nantes, for instance, it amounts to only 17*l.* 15s.

But while wooden vessels can thus be produced, according to the declaration of the French builders themselves, whose evidence on the point can hardly be suspected, at a rate which so nearly corresponds with that of England, iron ships, on the contrary, are very considerably dearer. This is but natural, when the difference of the price of iron is borne in mind. That difference certainly amounts to at least 20 per cent., and its effect is heightened by the dearness of coal and by the want of skilled riveters, who do not exist as a class amongst the men of the navy list, and who have to be taught their trade by degrees, and also by the absence of constant orders already alluded to as regards wooden ships, but which in this case exercises a still worse effect, for it prevents the establishment of well-mounted yards.

On the whole, the French ship-building trade, though limited in its production, and cramped in its freedom of action by these various difficulties, does not appear to be really suffering. Regular yards, where work is always going on, are very few in number; indeed, they may be said to exist only at Havre, Nantes, Bordeaux, Marseilles, and at the works of the Messageries Impériales at La Ciotat, but vessels are built all along the coast, in all the little ports, and on the open beach, wherever there is an order to execute. It is scarcely likely that the trade will be damaged by the admission of English wooden ships at 1*l.* per ton duty, for at the stated average cost of 20*l.*, that duty amounts to 5 per cent., which appears to be a sufficient margin. About iron vessels opinions are more uncertain, for the duty of 2*l.* 16s. per ton represents only 14 per cent. on 20*l.*, while the difference of cost against France is certainly 20 per cent.

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* Enquête sur le Traité de Commerce, vol. vi. p. 861.

No general account exists of the number of vessels launched every year, but the Tariff Committee received partial statements on the point from the builders examined before it. M. Arman, of Bordeaux, who is the largest builder in France, and who has delivered a good many war ships to foreign governments, announced that he alone had constructed 83,000 tons of shipping from 1850 to 1860; the port of Nantes had produced altogether 177,000 tons in the same period; while St. Malo, Bayonne, Cherbourg, Dunkirk, and various other small ports had constructed from 6000 to 40,000 tons each. No statement was made of the production of Marseilles, or of any of the Mediterranean ports. All the yearly quantities were unusually high in 1856 and 1857 in consequence of the sudden demand for vessels, which was provoked by the high rates of freight which then momentarily existed.

The number of vessels of all kinds owned in France, not including fishing-boats, has risen as follows since 1847 :*

	Sailing Vessels.		Steamers.		Total.	
	Ships.	Tonnage.	Ships.	Tonnage.	Ships.	Tonnage.
1847 . .	14,204	667,693	117	12,567	14,321	670,260
1850 . .	14,228	674,205	119	13,391	14,364	680,565
1855 . .	14,023	826,663	225	45,493	14,248	872,156
1858 . .	14,863	983,257	324	66,587	15,187	1,049,844

These figures show that, with the exception of the sudden movement just alluded to from 1855 to 1858, the progress lately effected has been less in the number of ships than in the augmentation of their average size. While the total increase of number has been only 866 in the eleven years in question (though it all took place in the last three years of the period), which is only 6 per cent. on the figure of 1847, the simultaneous increase of size amounts to 379,584 tons, or 56 per cent. The average tonnage had got up from 46 to 69 tons per vessel. As regards steamers, where the progress has been more marked still, their number rose from 117 to 324, which is 176 per cent.; but their tonnage, which was 107 tons per steamer in 1847, was 205 tons in 1858.

While the fleet of merchant shipping has thus increased, the progress of the general navigation of France down to the year 1859, which is the latest date to which the detailed returns are at this moment published, has been far more considerable. The following table shows the variations of its movement since 1837.* With the exception of the coasting trade, the figures represent the total of the entries in and out, but of loaded vessels only; ships in ballast are not included. The quantities given for coasting are those of departure alone, as in this case the vessels are bound to French ports:

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* Statistique Comparée de la France, vol. ii. p. 264.

	1837 to 1846. Average.		1847 to 1856. Average.		1859.	
French ships:	Ships.	Tonnage.	Ships.	Tonnage.	Ships.	Tonnage.
Foreign trade.....	9,448	860,619	11,352	1,292,642	15,481	2,339,404
Colonial trade.....	1,540	276,378	2,701	424,126	2,627	615,206
Sea fisheries......	973	127,465	846	110,758	1,092	146,866
Total of foregn navigation	11,961	1,264,462	14,899	1,927,526	19,200	3,101,476
Coasting trade.....	91,236	2,922,004	95,383	3,401,849	95,715	3,769,831
Total of French navigation	103,197	4,186,466	110,282	5,229,375	114,915	6,871,307
Foreign ships..........	15,797	1,890,290	18,930	2,551,936	26,275	3,938,490
General total of the navigation of France...	118,994	6,076,756	129,212	7,781,311	141,190	10,809,797

It results from this table that the maritime trade of France has risen in all its branches: the total number of ships engaged in it, or more strictly the total number of voyages executed, has risen from 118,994, on the average from 1837 to 1846, to 141,190 in 1859, which is an advance of 18½ per cent., while the tonnage employed in the transport of goods (it must be repeated that empty vessels are not included) has increased from 6,076,756 to 10,809,797, or 79 per cent.

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* Tableau Général du Commerce de la France, 1859.

This general average of progress has, however, been considerably surpassed in some of the classes of navigation enumerated in the above list, while others are largely below it. The tonnage of French vessels engaged in trade with foreign countries has gone up 172 per cent.; that occupied in colonial transports has increased 123 per cent.; but the importance of the coasting trade has augmented by only 29 per cent., and the fisheries have only gained 15 per cent. The simultaneous advance of the tonnage of foreign vessels trading with France has been 108 per cent.

The division of the general progress effected into these proportionate figures puts the relative development of the various categories of French maritime transactions into a simple and easily comprehensible form. The vessels engaged in foreign trade are those which have gained the most, and this fact forcibly brings up the question of the effect of the differential customs duties which are imposed on certain foreign flags for the express purpose of favouring the national marine. Is it to be supposed that because the French tonnage employed in this branch of trade has increased 172 per cent., while that of foreign vessels engaged in the same commerce has only gone up 108 per cent., that this difference between their respective augmentations is really owing to the consequences of protection?

A more interesting question could scarcely be proposed, but unfortunately no useful answer can be made to it. The official documents give nothing but dry figures on the subject, from which it is impossible to extract any symptoms of the cause which has produced the result in point. No one can say whether it has arisen from the real effects of the existence of differential duties, or whether it is not rather, like the progress attained during the same period, by the other classes of navigation, all of which are exclusively reserved to French bottoms, a natural consequence of the general development of the trade of the country. Furthermore, it is an ungrateful task to try to prove that protection is an advantage; and as there are strong arguments the other way, this probably deceptive fact may be left to be made use of by those whose opinions it seems to support.

But the arguments against these differential duties naturally find their place here. M. Block has extracted from the navigation returns of 1857 an elaborate and laboriously compiled calculation to prove that they do no good at all:*

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* Journal des Économistes, p. 367. March, 1859.

In that year the tonnage of laden French vessels, which arrived from foreign ports, amounted to	1,320,273	tons
while the tonnage of laden foreign vessels was	2,484,860	„
The total of laden vessels was therefore . . .	3,805,133	

From this total must be deducted the tonnage to which, in consequence of treaties to that effect, the differential duties did not apply; this tonnage was composed as follows:

French vessels . . .	1,320,273	tons		
English do.	1,088,485	„		
Various American do. .	258,648	„		
Neapolitan do.	97,248	„		
Sardinian do.	37,545	„		
Dutch do.	41,117	„		
Russian do.	22,930	„		
Other do.	5,408	„	2,871,654	„
Balance to which the differential duties really applied			933,479	„

Therefore, out of the total of 3,805,133 tons of merchandise, which arrived in 1857 from foreign ports, only 933,479 tons, or 24½ per cent., had to pay the extra duties, in consequence of the flag which covered them. Compared with the entire navigation of France, in and out, which, including coasting, amounted in 1857 to 10,864,513 tons, their proportion was only 8½ per cent.

And while the application of this system, in the reduced proportions in which it is now exercised, thus affects only one-twelfth of the whole maritime trade of the country, its advantages to the Treasury are less important still:

	£
The total product of the French custom-houses in 1857 was	7,312,000
From which must be deducted for the goods brought in by land	2,047,000
The proportion paid on seaborne goods was therefore .	5,265,000
From this must be subtracted the duties on importations from the French colonies	1,548,000
The amount paid by merchandise, brought in by free navigation, was therefore	3,717,000
The share of this sum, produced by importations made by French ships, or by the vessels of countries which are relieved from the differential duties, was . . .	2,787,000
There remains, therefore, for the total amount of duty paid in cases where the differential duties apply . .	930,000

Now, as the differential duties do not average above 9 per cent. on the whole, over all the sums to which they refer, it follows that the total amount produced in 1857 by this addition to the fixed duties did not exceed 83,700*l*., or $1\frac{1}{7}$ per cent. on the sum of 7,312,000*l*., which formed the total customs receipts of the year.

If the system produces only such unimportant results as these, it is certainly time to suppress it. Can its supporters extract more favourable arguments from the fact of the large comparative increase of foreign French navigation?

Next to the foreign trade, the communications with the colonies have progressed in the largest proportion. This is a natural consequence, not only of the reservation of that navigation for French vessels alone, but also of the constant increase of the production of the colonies during the last thirty years. This trade has more than doubled since 1837, and the efforts which have recently been made to stimulate it, especially by the foundation of the Crédit Colonial, which institution is intended to lend money to the colonists on mortgage, for the construction of sugar-mills and the improvement of cultivation, will probably enable it to continue to advance. Its transports will always continue to form an important element of French navigation.

The deep-sea fisheries have scarcely increased at all, for an advance of 15 per cent. in twenty-two years, in the tonnage they employ, can hardly be counted as real progress. Although most of the maritime nations have been gradually beaten out of the whale fishery by the Americans, and though the French have suffered from the same cause, they have been supported in the struggle by government aid, which renders their failure all the more remarkable. Since 1767 the state has accorded a series of varying premiums to the ships engaged in both the whale and cod fishery. The law of July 22, 1851 (the last which was enacted on the subject), fixed those premiums at from 12s. to 2*l.* per man, and from 9*l.* 12s. to 16*l.* of fish, for the cod trade, according to the station fished; and at 4*l.* 16s. per ton of the vessel, if manned by an exclusively French crew, or 2*l.* 18s. if the crew be mixed, for the whale trade.* To obtain these premiums, certain detailed conditions of armament and navigation must be observed. Notwithstanding the assistance which they offer, the whale trade is being rapidly abandoned in France. In 1856 only eight whalers went out, in 1857 only six, and in 1858 only four.† It is therefore evident that, as the tonnage engaged in fisheries has increased as a whole, the augmentation has occurred solely in the cod branch of the trade.

The coasting trade of France occupied 3,769,831 tons of shipping in 1859, against 2,922,004 tons on the average of the ten years from 1837 to 1846. The improvement has, therefore, exceeded one-fourth; and it is the more remarkable, when the damaging consequences which have ensued for parts of the coasting trade from the opening of railways are borne in mind. These consequences are real, and not imaginary; the analysis of the composition of the total of French coasting navigation shows exactly where, and in what proportions, they have produced themselves.

Before railways existed in France, nearly the whole of the heavy goods, which had to be exchanged between the Atlantic and the Mediterranean seaboards, went round by the Strait of Gibraltar; a small proportion, including especially the trade between the Bordelais and Languedoc, followed the Canal du Midi, from Bordeaux to Cette, but the sea was still the great channel of transport for raw material. Since the construction of railways, especially of the Midi and central lines, the old conditions have changed, and the new effects produced are indicated unmistakably by the modifications which have occurred in the relative parts of the trade. The following table* shows the exact movement; it is calculated on the weight of the merchandise carried, not on the measurement of the ships employed:

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* Dictionnaire de l'Administration Française: Art. "Pêche Maritime."

† Monde Commercial, p. 492, Dec. 20, 1860.

	1851.	1859.
From the Atlantic to the Mediterranean	59,881 tons	15,605 tons
From the Mediterranean to the Atlantic	130,403 „	68,274 „
Total of great coasting .	190,284 „	83,879 „
Between ports on the Atlantic .	1,486,452 „	1,756,101 „
Between ports in the Mediterranean	444,784 „	563,381 „
Total of small coasting .	1,931,236 „	2,319,482 „

Therefore, in eight years, the sea communications between the two coast lines of France have diminished by fifty-six per cent. But this rapid reduction has not been equally effected in the two directions of transit, for while the shipments from the Atlantic to the Mediterranean—that is to say, from all ports between Dunkirk and Bayonne to all ports between Port Vendres and Nice—have fallen seventy-five per cent. in the period in question, the shipments the other way have decreased by only forty-seven per cent. And this diminution on the long sea-coasting has occurred simultaneously with a considerable increase on the ordinary coasting, between ports on the same seaboard. While the former has fallen altogether fifty-six per cent., the latter has gone up twenty-five per cent. Here the proportion is in favour of the Mediterranean, which is not surprising when the recent remarkable extension of the commercial relations of France in that sea is borne in mind. It is natural that the coasting trade of a port should profit by the development of its foreign navigation, and the constant growth of the maritime importance of Marseilles gives a vigorous impulsion to its communications with the neighbouring ports.

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* Tableau général du Commerce de la France.

These various figures prove that the merchant navy of France is doing a constantly growing trade. In two of its elements only is it going backwards: in its whale fishery and in the transports between its own most distant ports. But the decay of the whaling interest exists everywhere else, excepting in the United States: while the diminution of sea-carriage between the Atlantic and the Mediterranean implies only a deviation of the line followed, and in no way indicates any falling off in the real amount of general traffic. It may, therefore, be taken as proved, by the results themselves, that the shipping interest is in a healthy and prosperous condition.

But these results have all, without exception, been obtained under the apparent influence of protection of some kind; protection for the shipbuilders by the exclusion of all foreign-built vessels; protection of about two-thirds of the tonnage employed by the reservation of the colonial, fishing, and coasting trades for the national flag alone; and protection of the remaining third, in various degrees, by the differential customs duties. The latter is, however, worthy of mention, rather to complete the outline of the system employed than as exercising any really useful influence on the progress of French shipping.

The first of these protections, the prohibition of vessels constructed abroad, has been destroyed by the English treaty, and it has been shown, on the evidence of the parties most affected by this radical change—the builders themselves—that no harm to French interest is likely to ensue from it.

The second class of protection, the reservation of certain categories of navigation for the ships of the country, exists, more or less, and with varying degrees of restriction, everywhere else; the effects it produces have, therefore, no special